New IT security breaches are embarrassingly familiar for Cisco and Wells Fargo. PAGE 6

BNSF Railway puts an IP network installation on a fast track to improve its signaling capabilities. PAGE 7

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NOVEMBER 8, 2004 ▪ VOL. 38 ▪ NO. 45 ▪ $5/COPY

Electronic Voting Systems Pass Their Big Test – Maybe

Vendors say election validates technology; critics not convinced

BY DAN VERTON AND PATRICK THIBODEAU

Electronic voting systems avoided the virtual meltdown that some people had predicted during last Tuesday's election. But critics said the technology still has significant shortcomings that raise questions about the validity of the results tabulated by the machines.

Officials in various states said they encountered relatively minor glitches, such as a North Carolina county's inability to account for about 4,500 ballots cast on touch-screen systems. Nonetheless, the apparently largely successful use of the 175,000 or so e-voting systems deployed throughout much of the U.S. led proponents to call the election a validation of the technology.

"Electronic voting machines took an important test on Nov. 2 and passed with flying colors," said Harris Miller,

E-voting, page 16

ONLINE
Read more e-voting stories on our Web site:
QuickLink a4760

State Avoids Tax Refund on ERP System

Ruling in Wisconsin may have wider reach

BY MARC L. SONGINI

A judge has refused to order the state of Wisconsin to refund more than $340,000 in sales tax paid on a customized SAP system, which may set a precedent that relieves the state of the need to pay a total of about $300 million to corporate users. Lawyers said the decision could also prove costly to companies with large ERP installations in other states with similar tax laws.

At issue in the legal opinion is a sales tax refund sought by Menasha Corp., a pulp and

ERP System, page 69

ADDITIONAL COVERAGE
Visit our online **Knowledge Center** for more news about ERP issues:
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JONATHAN WEINER

GOING Down FAST

[PAGE 51]

IT MORALE IS BEING SWAMPED BY A COMBINATION OF SLASHED BUDGETS, OVERWORK, FEAR OF OUTSOURCING AND BAD BOSSES, BUT THERE ARE SOME STEPS YOU CAN TAKE TO TURN THE TIDE.

BY JULIA KING AND MATT HAMBLEN

NEWSPAPER

The new stud on the server farm.

Presenting the new Xserve® G5, a wickedly fast, extremely compatible and refreshingly affordable 1U server from Apple:

With dual 2GHz 64-bit G5 processors, it achieves blazing speeds of up to 30 gigaflops. It's so powerful, in fact, that the U.S. government is deploying* 1,566 Xserve G5 servers to create one of the world's fastest supercomputers, capable of up to 25 trillion calculations per second.

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Of course, its most impressive feature may be its price, starting at just $2,999†. The new Xserve G5.

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To manage this much money, you need a solution that offers optimum performance and real-time flexibility. Microsoft found both in the AMD Opteron™ processor running Windows Server™ 2003, Enterprise Edition. The AMD Opteron processor with its Direct Connect Architecture already powers the world's highest performing 2-way and 4-way x86 servers. Now Microsoft Treasury managers are using it to slash the time it takes to run their complex risk-analysis software. Meanwhile, they have the flexibility to go from 32- to 64-bit applications without disrupting their business. At AMD, we believe it's critical that technology should migrate on your terms to help you realize your unique vision. It's one of the reasons why leading OEMs offer enterprise-class solutions powered by AMD Opteron processors. Would you like to learn just how much of a difference they can make to your company? **Go to www.amd.com/enterprise**

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Documents Get Smart

Also in the Technology section: Intelligent documents that use XML could change the way people interact with data, but automating the underlying business processes isn't easy. **Page 34**

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Avoiding Liability

SECURITY: If your company's computers are infected with a virus that is further spread by your employees, are you liable for damages that result? Douglas Schweitzer examines downstream liability. **QuickLink 50306**

Asking Great Questions

DEVELOPMENT: Columnist Johanna Rothman discusses the art of posing perfect questions that will help you get the information you need, whether you're in a job interview or a vendor meeting. **QuickLink 50531**

Five Steps to WLAN Security

MOBILE/WIRELESS: AirDefense's Anil Khatod explains how to deal with rogue users, set logical policies, install intrusion-detection systems and more. **QuickLink 50517**

Modularized RAID

STORAGE: Intel's Paul Luse explains modular RAID on motherboard, also known as MROMB technology, and when it might make sense. **QuickLink 49461**

News Right to Your In-box

Between issues of *Computerworld*, keep up with all the IT news you need with our free e-mail newsletters. Subscribe on our Web site. **QuickLink a1430**

Sarbanes-Oxley Update

NEWS: With a Nov. 15 deadline fast approaching, is your company ready for the Sarbanes-Oxley Act? Check out our latest coverage. **QuickLink a3250**

What's a QuickLink?

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AT DEADLINE

Stone Leaves Novell In a Surprise Move

VICE CHAIRMAN CHRIS STONE left Novell Inc. after helping the company reinvigorate itself over the past year with a strong Linux push that included the acquisition of SUSE Linux AG.

In a statement late last week, Stone said he left Waltham, Mass.-based Novell "to pursue other professional opportunities." Users and analysts expressed surprise at the move. Stone was second in command to Chairman and CEO Jack Messman and oversaw engineering, product management and alliances in his second stint at Novell. Stone couldn't be reached for comment.

Dion Cornett, a financial analyst at Decatur Jones Equity Partners LLC in Chicago, called the departure "a negative for both [Novell] and the industry. We believe that Mr. Stone was instrumental in pushing Novell toward a strategy of capturing value from open-source software, as opposed to giving away Linux to fuel demand for other offerings." According to a government financial filing, Stone got a $2 million severance package. That "suggests that [he] was asked to resign," Cornett said.

"Hopefully, there is a plan and direction" accompanying the departure, said George Raetzke, senior systems programmer at Northern Illinois University in DeKalb, Ill.

John Falsetti, senior vice president of information services at Kids Hope United in Chicago, a nonprofit social services agency that's a heavy user of Novell products, called the move "just more of the same. How many guys have come and gone in the last four years over there?"

Hal Thayer, a Novell spokesman, said the departure doesn't indicate a change in the company's strategic technology direction.

Laura DiDio, an analyst at The Yankee Group in Boston, said Stone's departure indicates "some sort of shakeup . . . since Stone was hired back as the heir apparent in 2002. This spells bad news for Novell, because Stone was obviously well respected and a well-known entity in networking. Another theory is that perhaps SUSE is taking over at Novell."

– Todd R. Weiss and Matt Hamblen

Cisco, Wells Fargo Face New Security Breaches

More Cisco code said to be stolen; PC thefts expose Wells Fargo customer data

BY JAIKUMAR VIJAYAN

Two well-known companies — Cisco Systems Inc. and Wells Fargo & Co. — last week found themselves dealing with the aftermath of apparent security breaches that in both cases were embarrassingly similar to incidents both had confronted only months earlier.

For the second time this year, Cisco said it was looking into the possibility that source code may have been stolen.

In May, an 800MB portion of Cisco's Internetworking Operating System code was illegally copied and posted on a foreign Web site.

The latest incident came to light when an anonymous hacker group offered copies of Cisco's PIX 6.3.1 firewall for sale in an online newsgroup early last week.

In a terse note posted on its Web site last week, the networking giant said it is "actively looking into the alleged claims by some Internet groups on the purported sale and general availability" of the source code. A spokeswoman declined to elaborate.

Meanwhile, San Francisco-based Wells Fargo last week said three laptops and one desktop computer containing personal information on thousands of the bank's borrowers were stolen in early October from an Atlanta-based subcontractor.

Wells Fargo was able to "quickly identify" the customers affected by the theft and last week issued letters notifying them of the loss of information and of plans to provide free identity theft protection, said company spokesman Kevin Waetke. "The customers were notified as a precaution only. We have no indication any customer's information has been compromised," he added.

Actual Risk

The actual risk posed to users by the apparent theft of Cisco's PIX firewall source code is minimal, said John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc.

"Unless Cisco was taking shortcuts they were hoping no one would ever see, this should not be a big deal," he said. But this incident, like the previous one, raises questions about how well protected Cisco's source code is, Pescatore added. If somebody could steal the source code from a protected server, they could also compromise it, he said.

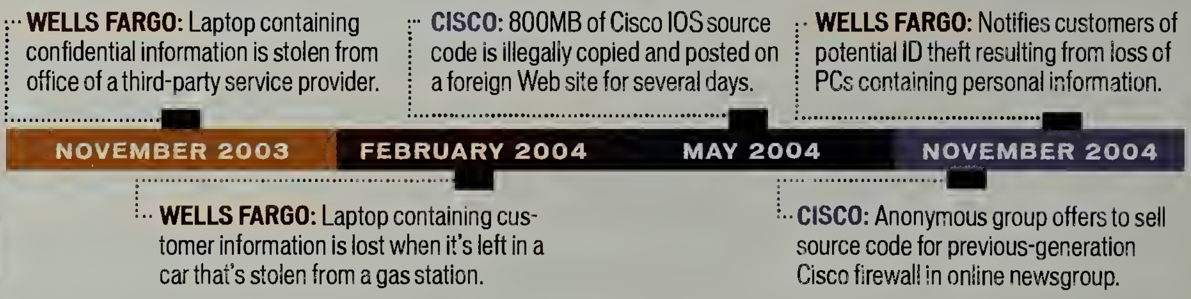
The net result of incidents like this is that a lot more source code is becoming available for hackers to go after, said Ken Dunham, a director at iDefense Inc. in Reston, Va.

In Wells Fargo's case, this is the third time since last November that the bank has had to warn customers of potential identity theft. Both previous cases resulted from stolen laptops.

"These incidents continue to be isolated, and each has a different set of circumstances," Waetke said. "We continue to learn from previous thefts of computers and want to ensure that affected customers are protected." 50562

Trouble Follows Them

This isn't the first time that Cisco and Wells Fargo have had to deal with security breaches in the past year.


WELLS FARGO: Laptop containing confidential information is stolen from office of a third-party service provider.
CISCO: 800MB of Cisco IOS source code is illegally copied and posted on a foreign Web site for several days.
WELLS FARGO: Notifies customers of potential ID theft resulting from loss of PCs containing personal information.
NOVEMBER 2003
FEBRUARY 2004
MAY 2004
NOVEMBER 2004
WELLS FARGO: Laptop containing customer information is lost when it's left in a car that's stolen from a gas station.
CISCO: Anonymous group offers to sell source code for previous-generation Cisco firewall in online newsgroup.

CA Unveils Antispyware Tool for Corporate Market

BY JAIKUMAR VIJAYAN

Although spyware is rapidly emerging as a threat to corporate security, only a handful of enterprise-class tools are available to help companies deal with the problem.

Hoping to fill that gap, Computer Associates International Inc. today will release an updated version of the antispyware software that it acquired with its purchase of PestPatrol Inc. in August.

CA's new eTrust PestPatrol Anti-Spyware r5 release builds on several features designed for corporate needs, said Sam Curry, the Islandia, N.Y.-based company's vice president of product management.

For instance, enhancements to the product's centralized management console, including a new user interface, will make it easier for administrators to deploy, monitor and manage antispyware protection, Curry said. A new, faster scanning engine can more efficiently scan networks for traces of spyware, adware, Trojan horses and denial-of-service attack agents, he said.

The corporate version of the software is integrated with Cisco Systems Inc.'s Network Admission Control technology, which is designed to let companies enforce network access policies on all systems attempting to connect to a corporate network.

Such enhancements are crucial for deploying antispyware protection in enterprises, said Ricky Stewart, computer service manager at Cornell University in Ithaca, N.Y.

Cornell has used PestPatrol software for nearly two years. But only after centralized management support became available was it able to automatically deploy the software to all systems, Stewart said.

CA next needs to integrate its antispyware tool with its antivirus software, said Jarrad Winter, network security manager at the Western United Insurance Co. in Irvine, Calif. "It just so happens that we have CA's antivirus tools as well. It would be great for some sort of integration," he said.

Another vendor touting enterprise spyware tools is Boulder, Colo.-based Webroot Software Inc., which offers Spy Sweeper Enterprise software.

Vendors of antivirus tools such as Symantec Corp. and Trend Micro Inc., both in Cupertino, Calif., have begun offering limited antispyware capabilities as part of their core antivirus suites. 50573

Railroad Uses IP Net to Control Signals, Switches

BNSF expects $30M project in Seattle to boost network reliability, capacity

BY MATT HAMBLEN
SEATTLE

The Burlington Northern and Santa Fe Railway Co. is nearing the end of the line on the installation of a $30 million IP network along a heavily traveled rail corridor in the Seattle area, a project that's expected to increase the reliability of the technology it uses to control signals and track switches.

The Sound Transit Telecom project involves the installation of a triple-redundant network of fiber-optic cables and T1 lines that will run for 45 miles between Seattle and Tacoma, Wash., and support combined IP voice, data and video traffic, BNSF officials said during a tour of network sites last week. The installation began two years ago and is due to be completed in 2005.

Fred Gratke, assistant vice president of telecommunications at BNSF, said the IP-based technology is replacing a proprietary wireless radio system that the company has used for decades to relay signal and switch commands between the Seattle tracks and the railway network operations center at its headquarters in Fort Worth, Texas.

The fiber-optic cabling and new network switches and routers are much more reliable than the older system is, Gratke said. The IP-based equipment will also provide greater network capacity, he noted. BNSF is using Ethernet-over-fiber technology that provides 1Gbit/sec. backbone speeds now and is expandable to 10Gbit/sec. throughput.

The IT rollout is part of a $248 million, government-funded initiative that involves adding a third set of tracks as well as expanded signaling and switching capabilities along the Seattle-Tacoma rail corridor, which is used by freight, commuter and interstate passenger trains. BNSF planned the new network, is managing the installation and will maintain the technology. But the bills are being paid by Sound Transit, a regional transportation agency.

"The third track adds more signals and more monitoring points, which presented a lot more points of telemetry along the track," Gratke said. The increased information flow would normally overload BNSF's wireless channel, but the railroad expects to have "nearly infinite capacity with the fiber," he added.

MATT HAMBLEN

BNSF EMPLOYEES inspect fiber-optic cabling in one of the bungalows along the Seattle-Tacoma railroad line that stretches 45 miles.

Nick Marquard, project manager for research and technology at Sound Transit, said the IP network will eventually be expanded to support data transmissions for electronic signs at commuter rail stations as well as IP video surveillance cameras.

Transition On Track

As of last week, BNSF had completed the installation of 32 trackside "bungalows" that house the new networking equipment; 50 bungalows are planned along the route. The buildings contain switches from Nortel Networks Ltd., voice-over-IP phones from NEC Corp. and products from several other vendors (see story at right). Central offices in Seattle, Tacoma and Auburn, Wash., are also on the network, Smith said.

The transition has been a smooth one for BNSF's signaling organization, said James Abbey, the company's manager of railroad signals for the state of Washington. "At the start, everybody in signaling was reluctant to try IP, since it was the first of its kind," Abbey said. But thus far, the new network has been completely reliable, with no delays to trains, he added.

In addition to its greater reliability, the fiber-based network is more secure than the wireless radio system is, said Greg Britz, manager of telecom engineering at BNSF.

Britz said the fiber infrastructure was made triple-redundant in the event of a major train derailment that could both knock out a bungalow and dig up the ground near the tracks deep enough to sever a backup fiber link. If that happened, vital information could still be sent via T1 links between each central office and over the remaining fiber lines, he said. 50547

MORE NEWS ONLINE

BNSF says the Seattle-area network could be a model for other parts of its rail system:
QuickLink 50546
www.computerworld.com

Sturdy Gear Keeps Network Running

SEATTLE

THE NETWORKING bungalows that BNSF is installing along its railroad tracks in the Seattle area are made with a stainless steel exterior and were designed for durability, according to project manager Thomas R. Smith. But the switching equipment housed inside them isn't specially ruggedized, he said.

BNSF considered how the IP switching gear would handle vibrations from nearby trains, especially since the hardware is primarily designed for use in offices. But extra ruggedization wasn't deemed necessary, Smith said. The company also decided not to include vibration-reduction equipment to protect the bungalows from earthquakes, which are relatively rare in the area.

Thus far, the networking devices that are in place have withstood all environmental hazards. "We have not had problems since the hardware was installed two years ago," Smith said, noting that the bungalows are designed with redundant elements, such as two air-conditioning systems.

Each bungalow and central office in the Seattle area houses several pieces of hardware from Brampton, Ontario-based Nortel, including its Business Policy Switch, ARN and BLN routers, and 8603 fiber-termination switches. BNSF also installed packet switches from Safetran Systems Corp. in Rancho Cucamonga, Calif., in the bungalows and central offices and at its railway operations center in Fort Worth.

NEC supplied about 150 VoIP phones as well as an IP voice switch for BNSF's Auburn central office. Other new technologies include a NetGuardian alarm device from DPS Telecom in Fresno, Calif., for detecting problems with power, building temperatures and fiber connections. BNSF is using IBM's Tivoli NetView 6000 management software to monitor the entire IP network.

– Matt Hamblen

Microsoft Offers Early Glimpse of Patches

BY JAIKUMAR VIJAYAN

Microsoft Corp. last week said that it will give users advance notice of its monthly security updates as part of an effort to make it easier for IT managers to install software patches.

Starting this month, the company will post on its Web site brief summaries of the planned security bulletins three days before they're released, said Debbie Fry Wilson, director of marketing at Microsoft's Security Response Center. The summaries will include a brief description of the affected software, the severity rating assigned to each flaw and whether the patches will require systems to be rebooted.

Starting in December, Microsoft will also send the summaries to users who register for e-mail notification on its Web site.

Microsoft has been making this advance information available for some time to corporate users who signed nondisclosure agreements, Wilson said. Now the company will make the summaries available to anyone who wants them, she said.

"This is based on customer feedback," Wilson said. "We heard from our customers that this sort of early feedback would be useful for planning."

But a lot depends on the kind of information that is made available, said Mike Tindor, vice president of network operations at First Internet Inc., an Internet service provider in St. Clairsville, Ohio.

"The only time I would see it as being significant is if an upcoming patch is likely to break some service or software that is currently running on a production machine," Tindor said. "In that case, advance notice is definitely helpful so that we can plan for a work-around or an alternative method of dealing with the possible breakage." 50575

BRIEFS

EDS Again Delays Q3 Earnings Report

Electronic Data Systems Corp. postponed the release of its third-quarter financial results for the second time and didn't set a new date for finalizing the numbers. EDS had planned to report the results on Oct. 25 but is reviewing the value of IT assets being used for its $8.8 billion intranet contract with the U.S. Navy. EDS also said last week that its audit committee is investigating issues related to its employee bonus plan.

Oracle Raises Its Bid for PeopleSoft

Oracle Corp. increased the price of its hostile takeover bid for PeopleSoft Inc., saying the new offer is its "best and final" one. Oracle raised its all-cash offer to $24 per share, upping the overall value of the proposed deal to $9.2 billion. But it said the offer will be withdrawn if a majority of PeopleSoft's shares aren't tendered by Nov. 19. PeopleSoft said its board plans to review the new offer.

CA Starts to Ship Open-Source DB

Computer Associates International Inc. released an open-source version of its Ingres database for Linux and Windows systems, keeping to a plan announced last spring [QuickLink 47216]. Registered users can download the Ingres r3 software under the new CA Trusted Open Source License. CA said versions for Unix as well as HP Tru64 and HP OpenVMS are due early next year.

Cisco Faces Lawsuit On Routing Patents

ConnecTel LLC in Miami Beach filed a federal patent-infringement lawsuit against Cisco Systems Inc. Cisco declined to comment, saying it has yet to see the complaint, which involves patents held by ConnecTel on intelligent data-routing technology.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

THIS IS MY EXPERIENCED IT Team?!
BIG IT Rollout

MATTHEW FAULKNER

Survey Shows IT 'Out of Shape . . .

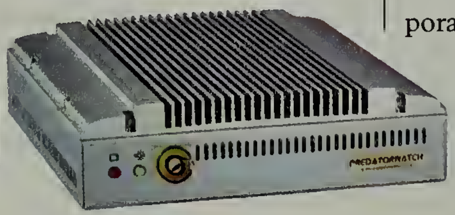
. . . when it comes to major technology implementations," warns John Norcross, vice president of technology at Celerant Consulting Inc. in Lexington, Mass. The U.S. branch of Novell Inc.'s U.K.-based consultancy teamed with newsweekly *The Economist* to poll executives at 290 mostly midsize U.S. and Canadian companies on their ability to handle big IT projects. Norcross says the survey results, which will be released this week, revealed that less than half of the respondents have attempted a major technology rollout during the past three years. He worries that the hiatus, combined with the "decimation" of IT departments through cutbacks and outsourcing, will hobble any IT-dependent "transformational change" initiatives demanded by top management as the economy improves. "I don't know whether it's a crisis, but it's approaching one," he contends. Although consultancies might benefit from the situation, Norcross says that without IT expertise inside companies, "all you've got is a bunch of generic consultants with generic knowledge producing a generic solution."

NORCROSS: IT expertise crisis coming.

Wireless defenses reinforced with . . .

. . . the release this month of rival offerings AirDefense 6.0 and PredatorWatch Auditor 128. Anil Khatod, CEO of AirDefense Inc. in Alpharetta, Ga., claims that the 6.0 upgrade of the software for the company's wireless network security appliances "can defend wireless devices and/or the wired devices they're connected to." The release adds client-side code that prevents online sessions from being hijacked to bogus Web sites when end users connect their laptops to public hot spots. Users are also now protected from intruders sneaking onto their machines via Bluetooth links. In addition, AirDefense 6.0 features improved network intrusion-detection and automated rogue management features, Khatod says. Pricing starts at $6,995.

PredatorWatch Auditor 128 ↓



According to Gary Miliefsky, CEO of PredatorWatch Inc. in North Chelmsford, Mass., as soon as a PredatorWatch Auditor 128 appliance is connected to a wireless LAN, it builds a database on up to 256 IP-based systems and conducts common vulnerability exposure (CVE) tests that reveal "anything that can be exploited." About the size of a paperback, the Auditor 128 provides information such as recommendations of patches needed for Windows-based systems. The appliance can also block unauthorized network access. It lists for $1,295 plus a monthly subscription fee of $59 for CVE updates.

Secure Web services need more . . .

. . . than well-intended standards, says Joelle Gropper Kaufman, vice president of marketing at Reactivity Inc. in Belmont, Calif. Gropper Kaufman says that standards such as WS-Security "are not implemented identically by vendors." Reactivity Chief Technology Officer John Lilly adds that the existing standards aren't comprehensive. For example, he claims that they don't protect Web services applications against XML denial-of-service attacks. Reactivity says its Gateway 2400 security appliances provide protection from XML DoS attacks and enforce policies for applications using Web services. The devices also offload encryption and decryption of Web services messages from corporate networks.

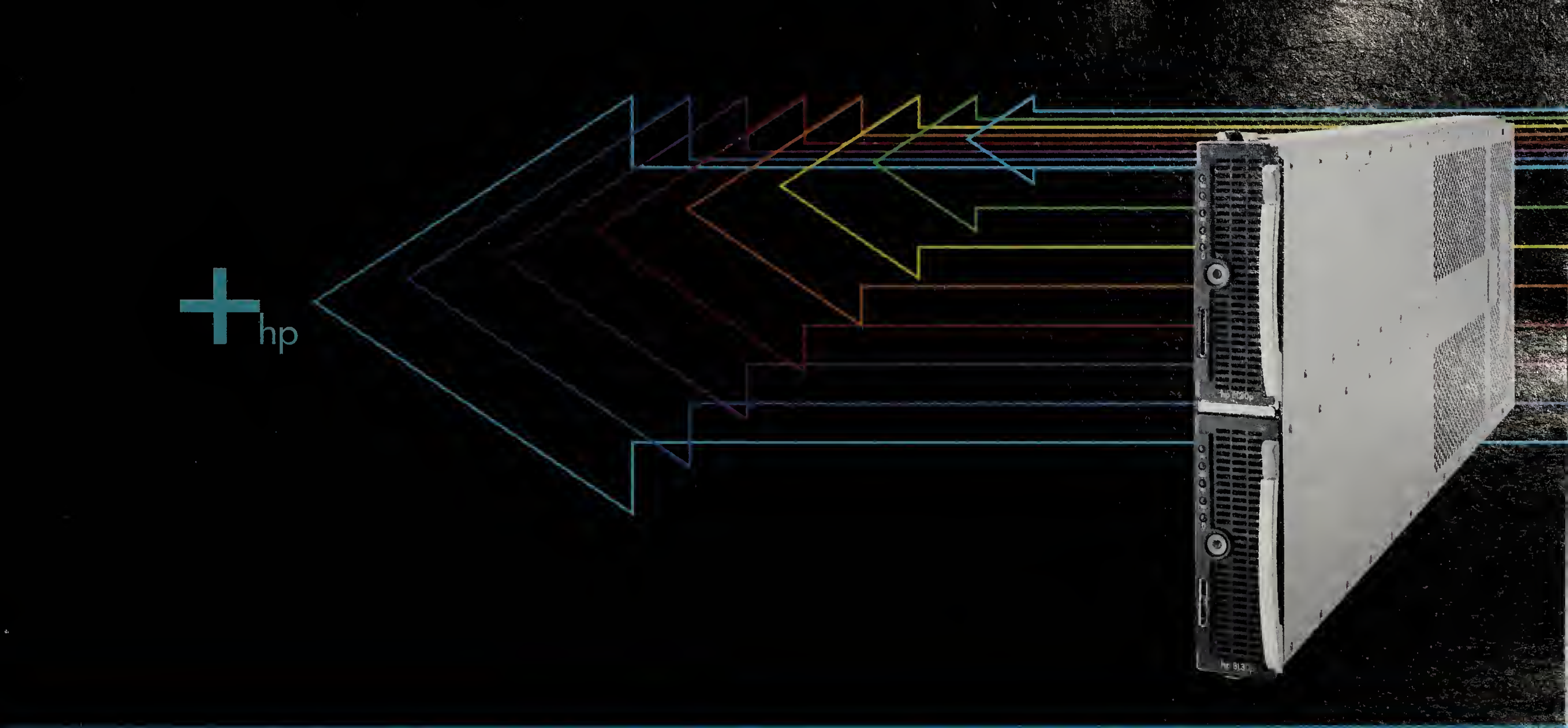
This week, Reactivity will release XOS 4.1, a software upgrade that supports Gigabit Ethernet speeds and improves performance on processing SOAP message headers. Pricing starts at $65,000, but a developer version costs $5,000.

Don't fret about iPods and MP3 players . . .

. . . as vehicles for stealing your company's data, advises Brian Cincera, vice president of security solutions at Greenwich Technology Partners Inc. in New York. Cincera disagrees with sentiments previously expressed here about such dangers [QuickLink 49095]. "Data leaving in the hands of employees is always an issue," he says. "But I don't think iPods, MP3 players and Bluetooth devices will raise the stakes."

CINCERA: Control over data access is haphazard.

USB memory devices like Sony Corp.'s Memory Stick pose a bigger threat, Cincera says, describing them as "the floppy disk of our generation." But he argues that obsessing about the legions of tiny digital devices hitchhiking in and out of your company won't lead to a more secure environment. "The bigger issue is how companies let people get access to data," he says. "We're haphazard about it." Cincera suggests that a good way to start better managing data security is to let "the information owner control the access and the risk." Trying to centrally control access beyond simple log-on processes is doomed because of the complexity involved, he says. Finer controls, such as policies on copying and sending information, need to rest with business units, in his view. That makes good business sense and takes the monkey off IT's back. **50535**



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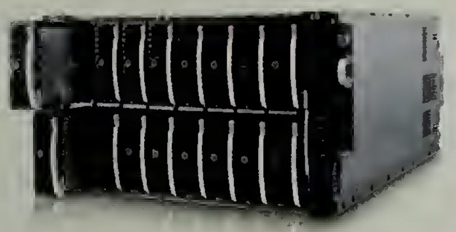

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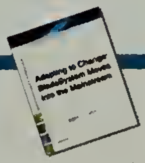

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Sun, Microsoft to End Silence About Product Integration Work

Initial focus is on support for single sign-on, directories

BY PATRICK THIBODEAU

MICROSOFT CORP. and Sun Microsystems Inc. plan to detail their initial product integration efforts late this month, focusing on directory services and single-sign-on capabilities.

Both sides confirmed the announcement plans last week, but only Sun officials would discuss any of the expected content. And they wouldn't disclose specifics about the directory and single-sign-on initiatives, which Sun previously identified as the most likely candidates for an initial interoperability demonstration.

The announcement will be watched with interest by users such as Lou Michael, director of core networks for the Arlington County, Va., government. Michael is considering replacing his PCs with Sun's Sun Ray thin-client devices. But one of the issues holding him back from moving off of Windows-based systems is his reliance on Microsoft's Active Directory.

Michael, whose network includes about 3,500 desktop and laptop PCs, said he doesn't want to have to support both Active Directory and Sun's Java Access Manager directory. "I'm hopeful that they will work together and integrate it," so either directory can handle both types of systems, Michael said.

He added, though, that he's skeptical about how deeply the two rivals will link their systems to each other's directories. His fear is that Sun and Microsoft may limit themselves to plans that accomplish integration at a high level but still require the use of both directories.

> **There's a lot going on. The big deal is negotiating dates for announcements.**
>
> **LARRY SINGER**, VICE PRESIDENT, SUN MICROSYSTEMS

Microsoft and Sun settled an acrimonious legal dispute last spring and said they planned to integrate their products to make it easier for users to adopt technologies from both companies [QuickLink 45957]. Since then, the two vendors have said little about their progress. They missed a summer target set by Sun CEO Scott McNealy for detailing their initial collaborative work, and an October announcement promised by another Sun executive in September also failed to materialize.

Jim Desler, a Microsoft spokesman, said last week that the companies should be judged on what they accomplish "over the course of the next five to 10 years." Desler added that the seven months since the settlement deal was signed "have been very positive in terms of setting up the relationship in a way that will serve not only the companies but the industry and customers over the course of the long term."

Finding Time

Larry Singer, vice president of Sun's global information systems strategy office, said the two companies have been working on a variety of issues, including interoperability, joint initiatives and standards. "There's a lot going on," Singer said. "The big deal is negotiating dates for announcements."

But users, resellers and analysts said that without a road map, they can't be sure of exactly what the agreement will deliver.

Anthony Martini, founder and chief technology officer at DigiGAN Inc., a Monroe, Conn.-based firm that does network security-related integration work for government agencies, said he wants to see Microsoft improve its support for Java. "But I don't know if the politics are going to get out of the way to allow change," he said.

However, there is also a recognition among observers that it will take time to finalize the interoperability plans because Sun and Microsoft have been at odds for so long.

"You have to wait until all the walls come down and agreements are in place before they can talk and brainstorm about what are all the possibilities between them," said Frances Draper, vice president of the Sun Business Group at GE Access, a General Electric Co. subsidiary that serves as a value-added distributor for about 800 Sun resellers. 50577

Sun, OpenOffice Plan to Make Desktop Apps More Like Office

SUN DOESN'T NEED to wait for any agreements with Microsoft to make its StarOffice desktop applications more compatible with Microsoft Office. And the level of compatibility is expected to increase in a new StarOffice version that's due next year.

The StarOffice code is largely developed by OpenOffice.org, a group that Sun formed in 2000 to create an open-source version of the software suite, which the company had acquired when it bought a German vendor a year earlier. OpenOffice.org plans to release Version 2.0 of its namesake applications in March with improved Office interoperability features, and Sun will quickly follow with a similar release of StarOffice, called Version 8, said officials from the two organizations.

Sun says there is a growing number of StarOffice adopters in Europe and Asia. But in the U.S., use by large commercial enterprises remains limited, said Gartner Inc. analyst Michael Silver. Two years ago, Gartner estimated that StarOffice had a slightly better than 50-50 chance of taking 10% of the office productivity suite market in the U.S. from Microsoft by the end of this year. But Silver last week estimated that StarOffice's market share is still somewhere in the "low single digits."

Silver said users don't want mixed environments running OpenOffice or StarOffice along with Word and other Microsoft applications. A product that can unseat Office isn't going to sell itself on file format compatibility or lower total cost of ownership, he said, adding that what's needed is something "that really takes us to a whole other level of how users get their work done."

The city of Largo, Fla., deployed OpenOffice one year ago to about 500 employees who use thin clients connected to a Linux server that runs a single copy of the software. "OpenOffice will cover just about anything you want to do," said Largo CIO Harold Shoemaker.

He added that the open-source alternative supports the majority of imported Office files except for documents or spreadsheets with Visual Basic macros, which don't operate on Linux. But Visual Basic issues aren't frequent for Largo's end users, Shoemaker said. One other problem he cited is that OpenOffice doesn't read PowerPoint applications well.

In terms of OpenOffice's cost, Shoemaker said the city "didn't have to buy it" but did have to invest in user training. But there would have been training expenses no matter what product Largo officials decided to use, he said.

OpenOffice.org is improving its software's interoperability with Office in an effort to appeal to users who "want something that can replace, fairly seamlessly, the main things that Microsoft Office is used for," said Louis Suarez-Potts, a senior community development manager at CollabNet Inc. in Brisbane, Calif. CollabNet supplies OpenOffice's development platform, and Suarez-Potts chairs the open-source group's Community Council.

While StarOffice shares the same code base with OpenOffice, Sun includes technical support as well as enterprisewide management and security features designed for corporate users, said Manish Punjabi, group marketing manager for the two products.

– Patrick Thibodeau

Planned Features

The OpenOffice and StarOffice upgrades will include these enhancements:

- Improved bulleting, numbering and table compatibility with Word
- More similarities between Office and Impress, the software's PowerPoint equivalent
- Faster application loading
- Support for XML file format standards developed by OASIS

MORE THIS ISSUE

A Microsoft executive discusses the company's plan for the next version of Office. **Page 69**

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BRIEFS

SCO Reconsiders Lawsuits Web Site

The SCO Group Inc. is reconsidering its plan to set up a Web site for posting information about its lawsuits against Linux backers. The company said it's having second thoughts because of "legal and management concerns about the content of the Web site." The site, initially slated to use the domain name *www.prosco.net*, which was then shifted to *www.scoinfo.com*, had been due to go live on Nov. 1.

U.K. Agency Signs New Microsoft Deal

The U.K. National Health Service said it has signed a revised software licensing deal with Microsoft Corp. that's expected to save the agency $206 million over the next three years and more than $600 million over the contract's full nine-year span. The deal gives the NHS up to 900,000 perpetual desktop licenses, compared with its current 500,000 licenses that need to be renewed annually. (See related item in Global Dispatches, page 20.)

MCI Reports Loss, Writes Off Assets

MCI Inc. reported a $3.4 billion third-quarter loss, fueled by a previously disclosed write-off of $3.5 billion worth of assets. CEO Michael Capellas said during a conference call that MCI plans to focus primarily on selling IP-based telephony and network services to large corporate users. Its Enterprise Markets unit generated $1.2 billion in revenue during the quarter, down 8% year over year.

Short Takes

INTEL CORP., which last month dropped plans for a 4-GHz Pentium 4, confirmed that it will release a 3.8-GHz version of the chip on Nov. 15. . . . **NOKIA CORP.** introduced a multifunction cell phone that includes a touch-sensitive screen and stylus.

Grid Storage Vision Appeals to IT Managers

Modular arrays with nondisruptive scalability popular

BY LUCAS MEARIAN

STORAGE VENDORS are taking a cue from the server world of grid computing and building modular array systems that can nondisruptively grow processing power along with capacity.

Next week, Sunnyvale, Calif.-based Network Appliance Inc. plans to come out with upgrades and enhanced features for its Storage Grid architecture, a set of disk arrays and switches that pool processing and storage capacity among network-attached storage (NAS) servers.

Storage suppliers of all sizes are using a variety of technologies and strategies to get grid storage systems into corporate data centers.

IBM is "heavily invested" in grid storage as part of an overall grid computing strategy that uses virtualization technology to knit together disparate storage, network and server systems, said Tom Hawk, general manager of enterprise storage systems at IBM.

Over the next year, Hewlett-Packard Co. said it will build on its StorageWorks grid products, which aggregate CPU and capacity under a single console view, to address file serving, archiving and storage management.

But despite all the work on such systems so far, "no one has proven to me they've completed the invention of core grid architecture," said Robert Gray, an analyst at IDC in Framingham, Mass.

Starting Small

The most popular systems today are smaller grid storage products that use low-cost parallel or Serial ATA disks and can operate at the block or file level and aggregate RAID controllers and capacity. The arrays load-balance among self-contained storage modules, allowing performance to grow in a linear manner, because each new module brings not only additional capacity but additional CPUs as well, vendors and analysts said.

Effective grid storage provides:

- A single management view
- Aggregated storage capacity
- Aggregated controller performance
- Nondisruptive scalability
- Simple setup

Smaller vendors hawking grid-style systems include 3PARdata Inc. in Fremont, Calif., Cloverleaf Communications Inc. in Southboro, Mass., Xiotech Corp. in Eden Prairie, Minn., ExaGrid Systems Inc. in Westboro, Mass., Tsunami Research Inc. in St. Louis, and Isilon Systems Inc. in Seattle. Most of the smaller suppliers pitch boxes to small and midsize companies that need low-cost storage networks to replace direct-attached storage environments there.

"The investment wasn't that huge, and I liked the speed of grid storage," said Phil Jache, deputy director of technology at *Sports Illustrated* magazine in New York, which purchased a NAS server from Isilon this year to consolidate file servers.

Jache said the box, which has a capacity of about 6.5TB, performed flawlessly during this summer's Olympic Games, storing 250,000 photos and delivering them to editors with lightning-fast read/write speeds.

Clustered storage systems from start-up LeftHand Networks Inc. in Boulder, Colo., operate at the block, not file, level by using the iSCSI protocol. By using iSCSI, LeftHand takes advantage of the ubiquitous IP Ethernet networks to back up and restore data to application servers.

Chris Scholik, network services manager at ALSAC/St. Jude Children's Research Hospital in Memphis, said he purchased a 6TB array based on grid computing technology from LeftHand two years ago to consolidate his server infrastructure. He gives the box high marks for ease of use and affordability.

Randy Kerns, an analyst at Evaluator Group Inc. in Greenwood Village, Colo., predicted that grid disk storage will someday meet enterprise requirements.

Other analysts see grids extending beyond the data center and into the WAN, using object-based storage that marries metadata with information that can be instantly retrieved from wherever it's stored.

IDC's Gray said he expects that storage grids will eventually connect heterogeneous arrays across WANs through a single interface. **50569**

Vendors Take Different Paths to Grid Storage

WHILE there are significant differences between various grid storage systems, they all perform one task: aggregating CPU processing power, storage capacity and the ability to grow seamlessly.

Vendors are lumping the terms *virtualization*, *clustering* and *grid* together into one technology marketing pile and calling it grid storage.

And while "any of those terms work" to describe grid computing, said Randy Kerns, an analyst at Evaluator Group, true grid storage must address RAID controller and capacity integration issues.

Close to a dozen smaller vendors, such as LeftHand Networks and 3PARdata, take somewhat different paths to reach the same goal. "The big difference between 3PAR and LeftHand is that [3PAR] has storage controllers clustered together and a pool of storage those controllers can access. LeftHand has nodes that contain the storage," Kerns said.

Larger storage vendors, such as Hewlett-Packard, IBM and Network Appliance, are all knitting together more distributed storage-area network (SAN) environments through open standards, common interfaces and virtualization technology that can link uncommon systems.

Network Appliance's grid storage architecture uses disks, filer heads or engines, switches and its Data Ontap operating system to enable serving mixed SAN and NAS workloads.

"[Start-up vendors' grid systems] are microcosm implementations of what is truly the macrocosm challenge most enterprises face," said Tom Hawk, general manager of enterprise storage systems at IBM. "They're nice, simplistic point solutions, but they have to be integrated into an enterprise infrastructure."

Hawk said most IBM customers are tackling grid storage and grid computing from an architectural standpoint in order to better utilize existing systems as IBM looks at information grids in a larger context – the context of the WAN.

Over the next year, HP will focus on giving its "smart cells" – all-in-one modules with controllers, storage and software –the ability to serve up block-level data from databases, integrated heterogeneous array controllers and grid-based storage management.

– Lucas Mearian

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IBM Preparing to Bring Out Services Bundle for WebSphere

Package aims to tie business goals to IBM technology investments

BY HEATHER HAVENSTEIN

IBM WILL soon begin offering bundled services that executives said will help users in vertical sectors like banking and insurance map business processes into service-oriented architectures (SOA) using IBM WebSphere technologies, *Computerworld* has learned.

In the coming weeks, IBM will take the wraps off its Service-Oriented Modeling initiative, described as a package of services that can provide IT managers with an analysis of business processes to identify those that are core to the enterprise. At the same time, the bundled services can be used to create methods that can be folded into an SOA by using IBM's underlying architecture and applications, said Michael Liebow, vice president of Web services for IBM's Global Services unit.

In some cases, users may opt to outsource to IBM Global Services those processes that are not core or unique to the business, he added. "The areas that don't produce any differentiation are the areas that are sucking you dry relative to costs," Liebow said. "What you're trying to do is balance the things that drive value for the organization and those that are common or undifferentiated."

IBM will offer bundled services tailored for several sectors, including banking, insurance, consumer goods, retail and government, he said.

The University of North Carolina at Chapel Hill's Laboratory for Molecular Modeling worked with IBM to develop a reference architecture. That project enabled it to integrate 12 applications that researchers use for drug discovery efforts into an SOA using IBM's WebSphere platform and DB2 database technology.

As a result, researchers now have faster access to molecular data in the databases. In addition, remote scientists can access the system via the WebSphere portal, according to UNC officials.

"They have provided us with an architecture to connect individual programs together and develop a single workflow where input and output of individual programs are connected," said Alex Tropsha, professor of medicinal chemistry and director of the lab. "We have realized that a lot of things that we do will become much more efficient if we organize them in a workflow. Help from IBM in this area was critical."

IBM's new initiative comes on the heels of BEA Systems Inc.'s unveiling last week of bundled services that executives there said will help BEA WebLogic users build SOAs for tackling common enterprise pain points like customer service.

Infrastructure companies like IBM and BEA increasingly are finding that to entice users to buy their products, they must provide these bundled services to link their technology to concrete business value, said Eric Austvold, an analyst at AMR Research Inc. in Boston.

"It's easier for the business professionals that approve IT expenditures to understand why the infrastructure software is necessary and how it aligns with their corporate business strategy," he said. "Gone are the days when an IT organization's budget was based on an assumed fixed percentage of revenue. Today, it's a zero-sum game. . . . Every project needs business justification." 50587

Service-Oriented Modeling Initiative

WILL TARGET banking, insurance, consumer packaged goods, retail, government and other sectors.

DESIGNED TO PROVIDE bundled services to help enterprises identify business processes core to the business and determine how they can be folded into an SOA.

WILL BUILD off the success of IBM's Service Provider Delivery Environment, a 2-year-old technology framework being used by 22 of the largest 23 telecommunications companies to streamline service development.

Top Execs Slow to See Need to Manage IT Assets

To get support, start small and show results, experts say

BY THOMAS HOFFMAN

Mounting regulatory requirements such as the Sarbanes-Oxley Act of 2002 have helped convince some corporate executives to at least pay attention to the need for IT asset management practices. Nevertheless, several attendees at a recent IT asset management conference said that attaining executive buy-in and funding for asset management programs remains a big challenge.

"We have not even attempted to sell senior management as of yet. Senior management does not even have a good idea as to what IT asset management means," said Steve Whelan, manager of asset management at PG&E Corp. in San Francisco, parent of Pacific Gas and Electric Co.

Before Roger Gray recently stepped down as CIO for the utility, said Whelan, "he was beginning to understand" the importance of IT asset management. "But to my knowledge, he had not carried the message any higher" into PG&E's executive ranks, Whelan added.

Whelan surmised that the next CIO — PG&E is still going through the recruiting process — will have some background in IT asset management but that the education process "will begin where Roger left off."

That maps with what many other IT asset managers are encountering. "Executive buy-in on asset management is a big issue," said Barbara Rembiesa, president of International Association of Information Technology Asset Managers Inc., a for-profit user association in Akron, Ohio, that held its annual conference for asset managers two weeks ago.

To help raise executive awareness of IT asset management and its benefits, the user association is planning to conduct a series of executive briefings and "webinars" in 2005, Rembiesa said.

Attendees at the conference said it can be difficult for IT managers to convince senior management that an upfront investment in personnel and software tools to track hardware and software assets can yield both immediate and long-term cost savings.

According to Frances O'Brien, an analyst at Gartner Inc., companies that systematically manage the life cycles of their IT assets can reduce the cost per asset by as much as 30% in the first year and 5% to 10% annually over the next five years.

"The people at the top have to buy into what you're suggesting to them," said Mark Rosenbaum, customer service and quality assurance division manager for the IT services group at the Arizona Superior Court, a division of the Pima County Government in Tucson. "You have to convince them of the need to change the culture" and adopt sound IT asset management practices, he said.

That also means getting senior management to practice what you preach as an asset manager, said Rosenbaum. He recommends taking steps to ensure that senior executives themselves are in full compliance with software usage. If they aren't, Rosenbaum said, "you need to find a tactful way to say, 'Dude, you have to clean up your act.' "

IT asset managers also must enforce software license compliance throughout the ranks, added Rosenbaum. Compliance requirements that lack teeth, he said, lead to wasted time and effort. 50550

TIPS

Selling Asset Management to Executives

- **Put together a well-conceived business plan** that includes the costs of dedicating personnel and software to IT asset management as well as the estimated return on investment.
- **Cite case studies of other organizations** – especially competitors – that have achieved success with IT asset management programs.
- **If senior management isn't willing to fund an extensive asset management program, start with a small project,** such as tracking desktops within a particular department, and present the results and savings afterward.

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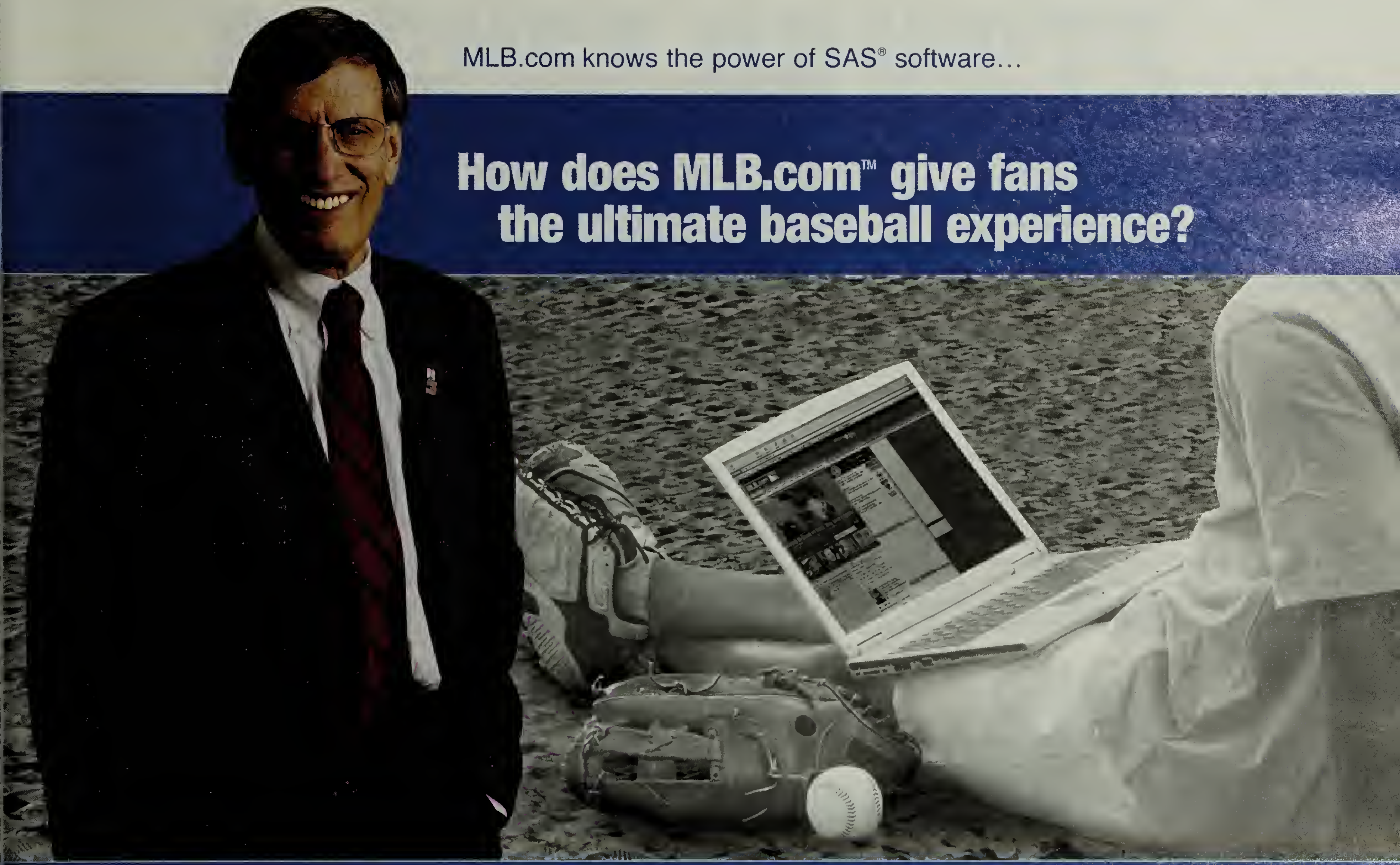
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Continued from page 1

E-voting

president of the Information Technology Association of America, an IT industry lobbying group in Arlington, Va.

Britt Kauffman, president and CEO of Austin-based Hart InterCivic Inc., whose e-Slate touch-screen systems were used in nine states, said all the reports he has seen point to a "relatively smooth Election Day" for the millions of voters who cast electronic ballots.

But voter monitoring groups posted accounts of incidents that they said show the need for nationwide technical and procedural e-voting standards.

The lack of standards and the inability to verify vote tabulations has created a potentially flawed election process, some critics claimed.

"We need some way of assessing what has happened after the fact," said Peter Neumann, principal scientist at SRI International's Computer Science Laboratory in Menlo Park, Calif., and chairman of the National Committee for Voting Integrity (NCVI), a Washington-based advocacy group. "It is extremely difficult to determine what happened because there is an absence of accountability and auditing in those machines."

Doug Jones, an NCVI member and an associate professor of computer science at the University of Iowa in Iowa City, said voting "went remarkably smoothly, considering that we had record turnout and considering that it was scrutinized with more intensity then I can remember." But he said little is known about what can go wrong when people use e-voting systems.

"All we can do is compare the number of ballots with the number of votes recorded and wonder, 'Why did people come to the polling place to cast a blank ballot?' " Jones said.

The use of e-voting machines that don't produce a paper record of votes "is the most perplexing thing I've ever seen," said Lillie Coney, NCVI coordinator and a senior policy analyst at the Electronic Privacy Information Center in Washington. Part of the problem lies with state and local election officials who aren't savvy IT buyers, Coney contended. "They're relying strictly on what their vendors tell them," she said. "If their vendors tell them it's secure, it's secure .

Avi Rubin, a computer science professor at Johns Hopkins University in Baltimore, volunteered as a poll worker in Timonium, Md., last Tuesday. An NCVI member and a critic of the security controls built into e-voting software, Rubin claimed that Diebold Inc. touch-screen systems at the polling place were left unattended overnight on the eve of the election and were configured by two election officials from the same political party.

Rubin said there currently is no way to know if someone has tampered with e-voting ballots. "If you drive without a seat belt, as we did in this election, and you don't crash, that doesn't mean you should conclude that it is safe to drive that way," he said.

THE ASSOCIATED PRESS

A VOTER IN MARYLAND tests an electronic voting machine.

Michigan plans to install optical scanning equipment in all 5,300 of its precincts by 2006, said Ken Silfven, a spokesman for the secretary of state's office. Voting on touch-screen systems went smoothly at 23 precincts in a single county last week, Silfven said. But he added that optical scanning is being adopted statewide to standardize voting equipment and address concerns about the need for a paper trail.

On the other hand, South Carolina officials plan to expand the use of iVotronic touch-screen systems from Election Systems & Software Inc. to all of the state's 46 counties beginning next year, said Marci Andino, executive director of the South Carolina State Election Commission. About 5,000 of the machines, which can store images of all electronic ballots in case recounts are ordered, were used in 15 counties last week.

Voters in a handful of precincts had to switch to paper ballots at the start of voting because of mistakes by poll workers that were quickly resolved, Andino said. "None of the problems were from machine failures," she said, adding that the e-voting systems performed "exceptionally well." **50574**

Todd R. Weiss and Heather Havenstein contributed to this story.

READ MORE ONLINE

Clogged systems: The Verified Voting Foundation had to add Web servers after its online database of incident reports slowed to a crawl: **QuickLink 50511**

Opinion: Without a paper trail, there's no way to verify the accuracy of e-voting systems, writes Sharon Machlis:

QuickLink 50519
www.computerworld.com

E-voting Snafus Limited in Scope, Severity

REPORTS OF E-VOTING system malfunctions began trickling into various independent monitoring organizations almost as soon as the polls opened last Tuesday. But state officials characterized most of the problems as small-scale snafus.

One of the most serious confirmed glitches was the case of 4,532 missing votes at a precinct in Carteret County, N.C. Gary Bartlett, executive director of the North Carolina State Board of Elections, said Friday that officials were still trying to retrieve the ballots from the storage units of touch-screen systems made by UniLect Corp. in Dublin, Calif.

A total of 7,537 people were listed as having voted at the precinct, but the machines recorded only 3,005 votes. Bartlett said that it wasn't clear why the missing votes weren't accounted for and added that state officials have called on UniLect to "use every possible resource to retrieve those ballots."

The candidates in two unresolved statewide races were within several thousand votes of each other late last week. Bartlett said it was too soon to speculate about what state officials would do if the missing votes in Carteret County can't be retrieved. "It's a big question mark," he said.

Several other states reported less-severe problems. For example, Georgia used Diebold Accu-Vote-TS touch-screen systems in all of its 159 counties. Only two counties reported problems, according to Cara Hodgson, a spokeswoman for the secretary of state's office. She said that election officials in Twigg and Hancock counties had early-morning difficulties programming the correct ballots into some of their systems.

The encoders built into the balky systems "were still encoded for the primaries, and they hadn't been updated," Hodgson said. She added that the two counties issued provisional paper ballots until the system problems were resolved. Otherwise, the state had a "very smooth" day, she said – a change from elections in 2002 and last year, in which some Diebold systems locked up, registered "yes" when people voted "no" on ballot questions and displayed the wrong races.

Officials in Louisiana reported "minimal" problems, said Scott Madere, a spokesman for the secretary of state's Elections Office.

Orleans Parish, which includes New Orleans, used 829 AVC Advantage touch-screen devices from Sequoia Voting Systems Inc., and parish officials placed about 30 machine-related service calls on Tuesday, Madere said.

Twenty-four of the calls were for problems that required minor repairs, while the other six led to machines being replaced. But three of the replaced systems were inadvertently turned off by poll workers and couldn't be restarted, Madere said. The other three had technical problems that were "bad enough to pull [them] off-line," he said, but he added that parish officials were able to retrieve all the ballots cast on those systems.

In Ohio, there were no apparent problems in the seven of the state's 88 counties that use touch-screen systems, according to James Lee, a spokesman for the secretary of state's office.

Officials in Pennsylvania, Wyoming, Kentucky and Iowa also said that they hadn't received reports of problems with touch-screen systems or other automated voting machines. However, Dallas County in Iowa opted not to use its e-voting systems out of fear of potential malfunctions, said Anthony Carroll, voter outreach coordinator in the secretary of state's office.

– Matt Hamblen, Heather Havenstein, Linda Rosencrance, Marc L. Songini, Dan Verton and Todd R. Weiss

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GLOBAL DISPATCHES An International IT News Digest

Some Suppliers Meet Metro's RFID Deadline

DÜSSELDORF, GERMANY

TWENTY SUPPLIERS have begun shipping products on pallets that are tagged with radio frequency identification chips to more than 270 stores operated by Metro AG, the German retailer said last week.

Metro, the world's fifth-largest retailer, initially planned to have more than 100 suppliers using RFID tags by Nov. 1 but fell short of that goal. "Not everyone is ready yet, but our plan is definitely to have all suppliers convert quickly to RFID technology in the areas of shipping and warehousing," said Metro spokesman Jürgen Homeyer.

Suppliers such as Colgate-Palmolive GmbH, Kraft Foods Deutschland GmbH, Nestlé Deutschland GmbH and Procter & Gamble GmbH met the November deadline.

Beginning early next year, Metro will require suppliers to affix RFID tags to other types of transport packaging, such as cases and crates, Homeyer said. Eventually, the tagging will be extended to individual products, he added.

Metro, which operates more than 2,300 stores, has tested RFID tags for more than a year at its Extra Future Store in Rheinberg, Germany.

■ JOHN BLAU, IDG NEWS SERVICE

GLOBAL FACT

1,000

Average number of IT services workers that India's Wipro Ltd. adds every month.

Doctors Call for Input On U.K. Health Project

LONDON

THE BRITISH MEDICAL ASSOCIATION (BMA) last week urged leaders of the U.K. National Health Service's IT infrastructure modernization project to consult more with doctors and other health care workers who will use the new technology.

"So far, the level of engagement and consultation with the medical profession has been wholly inadequate," Dr. John Powell, chairman of the BMA's IT committee, said in a speech here. "There is no point investing billions of pounds in systems that do not have the confidence of users."

An NHS spokeswoman said the IT project team consults with thousands of doctors and nurses daily, but she conceded that there's room for improvement in the process. The massive 10-year project includes development of a database that will contain electronic health records for about 50 million patients in England and be accessible by 30,000 doctors.

■ LAURA ROHDE, IDG NEWS SERVICE

Indian Firm Acquires Tyco's Undersea Fiber

BANGALORE, INDIA

VIDESH SANCHAR NIGAM LTD., a Mumbai, India-based network services provider, last week announced that it's acquiring the Tyco Global Network, the world's largest undersea fiber-optic network, from Tyco International Ltd. for $130 million.

The deal, which requires regulatory approval, would give VNSL a network that spans 37,208 miles and three continents. Analysts said VNSL, a sister company of Mumbai-based Tata Consultancy Services Ltd., is trying to move beyond its customer base in India and offer data bandwidth on a global basis to major corporations.

Pembroke, Bermuda-based Tyco put the network up for sale as part of a restructuring. **50522**

■ JOHN RIBEIRO, IDG NEWS SERVICE

Compiled by Mitch Betts.

Briefly Noted

India's government is making it easier to register Internet addresses with the ".in" top-level country domain, in hopes of boosting the country's identity on the Internet. Dayanidhi Maran, minister for information technology and communications, urged India's webmasters to use the .in domain as a gesture of patriotism.

■ JOHN RIBEIRO,
IDG NEWS SERVICE

Information Society Index

Denmark displaced Sweden at the top of IDC's annual ranking of countries based on their IT capabilities. Factors include the number of households with PCs, IT spending, Internet usage, broadband and wireless network adoption, education and civil liberties.

1. Denmark
2. Sweden
3. U.S.
4. Switzerland
5. Canada
6. Netherlands
7. Finland
8. Korea
9. Norway
10. U.K.

SOURCE: IDC, FRAMINGHAM, MASS., NOVEMBER 2004

Open-Source Path Not an Option for Oracle, Exec Says

BY JOHN RIBEIRO
BANGALORE, INDIA

Oracle Corp. has no plans to create an open-source version of its database and file systems technologies, despite recent moves in that direction by competitors. **Robert Shimp**, *Oracle's vice president of technology marketing, discussed these and other issues with the IDG News Service last week at Oracle OpenWorld Mumbai in India.*

Computer Associates started distributing the Ingres database under an open-source license, and Sybase offers its database free to Linux users. Does Oracle need to do something similar for the open-source user? We have no plans to either open-source or make our products available for free.

Does Oracle still believe that the typical open-source user is price-sensitive and therefore can't afford Oracle products? We have extremely competitive pricing on our entry-level products, like the Standard Edition One product, that are at a list price of $149 per user. This price is highly competitive with open-source databases, which charge a great deal more for their support services.

Yet haven't companies like MySQL been cutting into your market share at the low end with open-source databases? MySQL does not claim the same database market as Oracle. Their product is used typically in the middle tier for storing data such as catalogs or Web sites and things like that. In fact, open-source database products are a good thing for Oracle, because they give a lot of users their first exposure to relational databases and give them an opportunity to learn about the technologies.

Why do you think companies like CA are open-sourcing databases? There are more than two dozen different database companies out there. Some are open-sourcing very old technologies in an effort to rejuvenate their business and grow shrinking market share. I don't see that as very viable.

Now that Red Hat has released Sistina Global File System under the GNU General Public License, do you need to continue updating your cluster file system? We believe that by providing the complete technology infrastructure, including the cluster file system, it is easier to install and maintain our products. The cluster file system is an important component of our clustering technology. In order to make it easier and simpler for our customers to install their products and maintain them, we want to provide a complete technology stack.

What are the challenges in the collaboration tool suite business, and how do you plan to deliver on that with Collaboration Suite? The big challenge for most customers is that they have a tremendous amount of unstructured data or content that needs to be managed centrally in a single repository, where it can be effectively cross-tabulated with the transactional data and decision support data. So we are very focused on bringing all that content management and real-time collaboration directly into the database, where it can be shared among any users and properly managed and tracked.

Do you think that small and midsize businesses now require products specific to their needs, or will Oracle continue to serve them simply with lower licensing costs and quicker configurations and installations? This marketplace is no different than the larger enterprise market. The challenge for them is to be able to do this at a cost-effective price, with a lower total cost of ownership. We are focused on innovating products to make them easier to install and maintain. **50533**

Ribeiro is a reporter for the IDG News Service.

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Mercury Exec Says Measuring Performance of Outsourced Applications Is an IT Challenge

Murphy weighs in on technology complexity and regs compliance

BY THOMAS HOFFMAN

Regulatory compliance, outsourcing and business technology optimization are all top-of-mind issues for IT managers these days. So it's hardly surprising that Mercury Interactive Corp., a Mountain View, Calif.-based provider of software for all three segments, is expecting an attendance boost of close to 50% at its Mercury World 2004 user conference this week in Orlando.

Computerworld *last week caught up with* **David Murphy,** *Mercury's vice president of corporate development, to discuss the key issues faced by its customers.*

What are the top issues your customers are wrestling with these days? There are three things happening that are driving the agendas. One is complexity, meaning the complexity of running IT operationally and the complexity of all of the technology and applications and changes happening in an IT environment. One of the things we hear a lot of is this notion of complexity.

The second one is outsourcing. We're really seeing a lot of companies move to the model of having a whole chain of different third parties helping to manage their operations.

The third one is this whole area of compliance, from a vertical industry level. Industries such as health care are being driven by changes in business compliance that's required.

How do Mercury Interactive's tools and services help customers address these issues? We had *The Economist*'s intelligence unit do a very broad survey of 750 IT execs in 14 countries, a very non-U.S. survey. We also had permission to work with IDC on a survey regarding the business value of IT. [The results of both studies are being released this week at Mercury World.]

The IDC report focuses on three things. In the complexity arena, there is a set of issues that need to be addressed in IT shops to manage the complexity of those applications better. Many applications have poor performance. In many instances, the applications may have been deployed, but as the business evolves, the complexity of upgrading and advancing those applications falls behind.

The second area IDC focused on was that you often don't find very clear performance measurement of the outsourced services being provided. How you make decisions about how things need to change from a change management standpoint tends to be problematic.

In our core product set, we have customers who have outsourced their application development or production environments, and they might be using our Quality Center or Performance Center [products] to help manage these things.

In IT governance [the third IDC report topic], managing change processes from a workflow and procedural standpoint is addressed by our IT Governance Center solution. We announced with [the opening of a Center of Excellence at Wipro Ltd.'s IT services facility in India] a capability around application testing that leverages the IT Governance workflow dashboard.

What else did these studies reveal? The IDC survey pointed out that over 44% of larger companies in North America are having to develop business processes and applications to address compliance requirements. While it's North American data, there's a trend in a lot of geographies now where the role of IT compliance is taking on a very significant part of those responsibilities.

Four out of five respondents in the *Economist* survey said the importance of process improvements and managing from an IT perspective is all tied to the compliance obligations they're having to meet. **50520**

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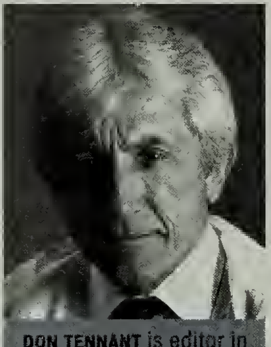
DON TENNANT

Regaining Relevancy

ONE WEEK FROM TODAY, Sun Microsystems will launch Solaris 10 amid pomp, glitz and circumstance at The Tech Museum of Innovation in San Jose. As the music pounds and the lights flash, the Sun PR machine will likely hail the launch as a turning point in the evolution of operating systems. Sun users and business partners will likely see it for what it really is: A desperate attempt on Sun's part to retain its relevancy.



DON TENNANT is editor in chief of *Computerworld*. You can contact him at don_tennant@computerworld.com.

Or to *regain* its relevancy, some would argue. The inexplicable paralysis that for so long kept Sun from offering a sensible response to the clamor for low-priced commodity systems has forced it into a game of catch-up that may well be unwinnable. Large enterprises like the Chicago Mercantile Exchange have already developed strategies to wean themselves off of Solaris on Sparc in favor of Linux on Intel [QuickLink 49769]. When the Merc embarked on that course more than a year ago, it really had no choice. "We didn't have a good answer for them," admitted Glenn Weinberg, vice president of Sun's operating platforms group.

Sun has since rushed to deliver systems based on AMD's Opteron processor and Intel's Xeon. And Solaris 10 advances the cause, since it will run on the Opteron in full 64-bit mode. But the odds against Solaris 10 becoming the savior that Sun so intensely wants and needs are high.

The Sun executives on stage next week will almost certainly boast about the near universality of ISV support for Solaris 10. But what you won't hear are some of the stories behind that "support."

The fact is, many ISVs are worried. Sure, they'll release software that supports Solaris 10, but their confidence in Sun is clearly shaken.

TeamQuest, a vendor of IT performance management and capacity planning software, has 60% of its installed base running Solaris, and Sun is a reseller of its products. But Mike Ellis, TeamQuest's executive vice president of worldwide sales and marketing, appears almost distraught when the subject of Sun arises. "Sun is in a bit of a mess internally," Ellis said during a discussion I had with him last month. He said TeamQuest is doing its best to shift resources to partner with IBM and to make its software a complement to Tivoli across all IBM product lines.

And Ellis hasn't seen his customers plan moves to Solaris 10, because it's too complicated. "Trying to reinvent z/OS doesn't make sense to me," he said. But that's what he thinks Sun's upgrade attempts to do. "I don't think anyone is looking for more complexity."

SAS Institute is another Sun ISV that will support Solaris 10. The companies are longstanding partners, and Solaris has historically been the top Unix platform for SAS software. But again, when you listen to what the senior executives are really saying, a different picture emerges. Last month, I spoke with SAS CEO James Goodnight, who left me with the impression that he no longer considers Sun to be the strategic partner it once was.

"I haven't even kept track of the Sparc chip lately," Goodnight said. "The Sun has sort of faded out." He cited high-level infighting at Sun over the issue of Solaris on Intel and suggested that the damage may be irreversible despite Sun's change of heart. "I sort of think it might be too late," he said.

For the sake of user choice, we can all hope Goodnight is wrong. Hey, more miraculous comebacks have happened. And Sun isn't even cursed. 50524

Don Tennant

THORNTON A. MAY

Looking for Creative IT Leaders

CREATIVITY leadership is the new career differentiator for emerging IT leaders. Longtime denizens of the technology demesne are no strangers to the terms *leadership* and *creativity*. It's rare, however, to see the words used together. This will change, according to research coming out of the IT Leadership Academy in Jacksonville, Fla., as we move deeper into an accelerated, creatively destructive, innovation-based economy.

There are libraries full of books on leadership, but people in IT tend not to be featured in those texts. Best-seller wannabes target IT folk as readers of leadership books, not as exemplars that appear in them. This must change. Business school curricula focusing on leadership don't rely heavily on case studies of IT practitioners; more frequently than not, the IT case is used to demonstrate what *not* to do. That may be why IT has such a bad reputation with number-crunching MBAs.

THORNTON A. MAY is a longtime industry observer, manageme consultant and commentator. Contact hi at thorntonamay@aol.

I'm not the first to comment on the eminently improvable state of leadership skills in the IT industry, and I certainly won't be the last. The leadership skills of CIOs' and CTOs' first-, second- and third-level reports are not, by anyone's calculation, complete.

But more significant than the need to top off IT professionals' leadership skills is the fact that what IT must lead is changing. The scope and scale of the IT mission is undergoing a significant transformation. No longer are the folks in IT seen as sequestered wizard-priests tending giant machines in isolated dungeons. We have moved beyond the old focus on back-office processes, and for many organizations, IT has become the major element of customer-touching activities in the front office. IT is at the base of customer experience, all the way from presales to delivery, deployment and billing. But the evolution of our profession doesn't end there. The next step for IT is to become an active and significant contributor to the process of product and service design. This puts IT smack-dab in the center of what Richard Florida has called the "creative class."

This sociologist-cum-demographer has provided a valuable service by tracing the boundaries and behaviors of this group of people. His book *The Rise of the Creative Class* (Basic Books, 2003) insightfully demonstrates that 30% of the nation's workforce (about 40 million people) can be bundled together in this class, which consists of individuals making their living in idea- or innovation-based occupations. His colleagues at Carnegie Mellon University estimate that this group accounts for about half of all U.S. wages and salaries — about $1.7 trillion.

What Florida doesn't say explicitly, though it is implied, is that the creative class isn't well led or provided for by existing institutions, even though it will be a force in shaping the future economy. The potential leadership of the future is up for grabs. Part of the grabbing will involve developing the skills necessary to lead.

The IT conversation isn't just about business. Increasingly, it's about the essence of society — how we live our lives. More and more, IT decisions involve not only dollars and cents but public- and foreign-policy considerations as well, as demonstrated by the prominence of issues such as information security, privacy and outsourcing. A little investment in developing the capacity and reputation for creative leadership will pay big dividends in the future. **50450**

PIMM FOX

Next Time, An Internet Electorate

REGARDLESS of whether you're happy with the results of last week's election, one thing we can agree on is that the voting process was much smoother than it was four years ago.

In one way, it doesn't matter, though; the presidential election of 2008 will be held on the Internet. That's where voters are increasingly getting information, and it's where they will cast their votes in a few years.

PIMM FOX is a London-based journalist. Contact him at **pimmfox@pacbell.net.**

More than 40% of Internet users have accessed political material during this election cycle. That's a 50% increase from the 2000 election, according to a new survey by the Pew Internet & American Life Project and the University of Michigan's School of Information.

This year, 78% of voters got most of their information on the campaigns from television, the survey found, and more than half relied mostly on radio and newspapers. But the survey also says that the 64% of Americans with broadband connections at home use the Internet and e-mail to learn about current events.

And those people aren't using the Internet to attack those with whom they disagree or simply as a means of avoiding them. Rather, the report says that "wired Americans hear more points of view about candidates and key issues than other citizens."

Indeed, the fact that voters aren't using the Internet to screen out opposing ideas ought to worry the cadre of cynical campaign strategists who regularly rely on a disinterested and divided electorate to win elections. According to the survey, the way people are using the Internet suggests that they will increasingly have greater exposure to arguments that challenge their views.

Imagine that. Internet users are exposed to more views and have greater interest in what other people have to say. That certainly sounds more hopeful than believing that we're doomed to nothing but more bland, repetitive and generally unfocused political rhetoric from candidates and their parties.

The mainstream news organizations ought to be concerned, though.

While 59% of all Internet users access information from major U.S.-based news sources, 18% of Internet users (and a quarter of home broadband users) have logged onto the Web sites of international news organizations such as the BBC or Al Jazeera. Alternative news sources such as AlterNet.org and NewsMax.com are also getting called up (11% of Internet users have visited such sites), as are more partisan sites such as MoveOn.org and the Christian Coalition.

Several years ago, many people said that consumers wouldn't be willing to trade stocks online and that they wouldn't reveal their credit card numbers or other personal information over the Internet. We now know that to be false. In fact, many people today use the Web to easily research investments, test different market scenarios and make decisions about managing their money, all with levels of privacy and security that consistently elude Florida election officials.

What a bright day for the political process if voters could go online and test candidates' positions on the budget deficit, check their voting records in Congress or see exactly where their campaign contributions came from. And how truly revolutionary if on Election Day they could turn their homes into individual polling booths.

Of course, many with vested interests will warn that giving too much power to the citizens could lead to election chaos, lawsuits and allegations of voter fraud. It can't, for one simple reason: We already have those things.

In an age when major retailers and U.S. government agencies such as the IRS routinely use the Internet to conduct business with the public, there is no reason why we can't point and click our way through ballot initiatives, candidate choices and referendums.

Unless, of course, the current crop of politicians and their allies don't want us to.

……

Clarification: In my Oct. 25 column, I said that Frank Quattrone had been convicted of obstruction of justice because of a single e-mail that "described his activities related to the practice of 'spinning.' " The e-mail in question was actually Quattrone's endorsement of another CSFB executive's instruction to employees to "clean up" their files, an instruction that prosecutors took to be obstruction of justice, since CSFB was then under investigation for spinning. It was inaccurate to say that Quattrone was convicted of the "lesser charge" of obstruction, since he had never been formally charged in the spinning investigation. He was, however, convicted of obstructing a grand jury, obstructing federal regulators and witness tampering. **50462**

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READERS' LETTERS

Regional Traits Do Vary in U.S., Y'all

HAVING GROWN UP in the Midwest, I enjoyed reading Frank Hayes' column predicting success for the "rural sourcing" of IT jobs to the back country of states like Arkansas ["Farmshore Future," QuickLink 49758]. I hope his vision of improved customer experience proves to be right. But his comment that "cross-cultural confusion" or "time-zone differences" are pretty much nonexistent here in the U.S. surprised me. At our company, we have seen many clashes between the style of Northeast urbanites and our slower, more congenial Southern style here in Virginia. Plus, we have the aggravation of having to wait till noon to talk to those sleepyheads on the West Coast. Worst of all, Northerners never seem to get the obvious difference between "y'all" and "all y'all." If Hayes needs to research cross-cultural confusion, I can let him enjoy a slow chat with my small-town Carolina in-laws, just to see how it compares with a support call to New Delhi.

Mark Holt
IT support manager, Media General Inc., Richmond, Va.

Don't Interfere With Microsoft's Sales

THE ONLY WAY that the price of a product should be controlled is in an agreement between a buyer and a seller ["The Color of Microsoft's Money," QuickLink 49271]. A third party has no business dictating the course of that transaction. Microsoft has every right to get as much money as it can for its products. The Justice Department, the European Union, competitors and everyone else who thinks they are "owed" something from Microsoft wish to control and usurp someone's right to his own property.

Since bringing Microsoft into any discussion often results in distorted reasoning, let's consider *Computerworld*. Some people get it for free, some don't. Certainly sounds like you get to pick your selling price to each customer. Doesn't Microsoft have the same privilege?

Thys Coetzee
Director of IS, Zinpro Corp., Eden Prairie, Minn., thys@zinpro.com

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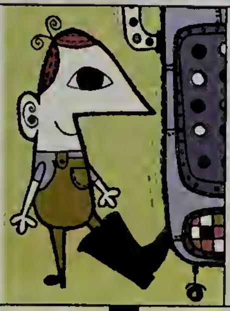
TECHNOLOGY

11.08.04

FUTURE WATCH

Giving Bugs the Boot

Researchers in California are working on a new class of techniques designed not to prevent software flaws, but to recover from them rapidly and transparently. The idea: micro-rebooting on the fly. **Page 40**



Q&A

Crossing Boundaries

Lotus Notes inventor and Groove Networks CEO Ray Ozzie discusses computers as communication tools, and the past and future of collaborative software. **Page 45**

SECURITY MANAGER'S JOURNAL

Taking the Leap to PEAP for Wireless

Mathias Thurman's company still has no formal policies or standards for wireless deployment, but access points seem to double every couple of months. **Page 46**

BROWSING THE BROWSERS

Microsoft's Internet Explorer is the default Web browser for Windows users, but it may not be the best choice for your organization. **BY RUSSELL KAY**

HANDS ON REVIEWS

IT'S SAFE TO say that your browser is probably Microsoft Corp.'s Internet Explorer, since IE installs automatically with Windows or Office. The browser wars of the 1990s are long gone, and Redmond won decisively.

But after the Netscape/IE struggle, a funny thing happened. With no serious competitor, Microsoft stopped development of IE. New versions appear from time to time, but it has been years since IE offered groundbreaking new features. Meanwhile, development of other browsers has continued to the point where many consider them preferable to IE in performance, security, ease of use, added features and even help desk support.

This review looks at IE's principal competitors: Opera from the fjords of Norway and the fraternal twin children of Mozilla. All offer more features, run faster than IE and are available on a variety of operating systems, including Linux, Unix and Mac OS X.

THE MOZILLA TWINS

When Netscape Communications Corp. gave its Communicator code to the public-domain, open-source Mozilla.com project, no one quite knew what to expect. The Mozilla Foundation's developers scrapped the original code and started over to produce efficient, cross-platform software. The Gecko browser and layout engine appeared quickly after the 1998 handover. Since then, several Netscape-labeled browsers have been based on Mozilla code, but these have lagged behind the open-source beta track in features and performance. Mozilla's browser development culminated in the September 2004 release of Version 1.0 of Firefox.

The two major Mozilla products — Netscape Navigator 7.2 and Firefox 1.0. — are mainstream, and the availability of their open-source code can be a real plus for corporate developers.

COMMON CHARACTERISTICS

I really liked the tabbed browsing within Netscape and Firefox; it's easy to open up new tabs, keep numerous pages open simultaneously and switch quickly among them. This is particularly helpful when using a search engine, since you can keep the search results in one tab while looking at pages in a new tab by just right-click-

Continued on page 32

MATTHEW FAULKNER

Predict Virus Outbreaks?

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Today's email borne viruses propagate globally in hours or minutes, much faster than traditional defenses can react, leaving you exposed to the "reaction time gap". IronPort's Virus Outbreak Filters™ stop viruses up to 8 hours before traditional virus definition files are available, literally predicting virus attacks before they cause harm. This astounding solution is powered by a series of proprietary algorithms that process data from SenderBase™, the world's first and largest email traffic monitoring network. Available now at www.ironport.com/leader

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ing on the link. Going back to the search page doesn't require a reload or refresh, as a page-back command would, just a switch in the display window. Also, the ability to open predefined groups of pages with one click can be a real convenience.

Another search aid involves the sidebar, an optional, multifunction panel to the left of the main window that can display bookmarks, history or search results. Just type a word into the sidebar's search box, and links appear below, with the first one opened in a new tab in the main window. You determine which search engine does the fetching. Finally, from any Web page, you can simply highlight a word or phrase, right-click it and select "Web search" from the context menu. It's a fast, smooth operation.

ALIKE AND DIFFERENT

Both Netscape and Firefox automatically import and set up my IE favorites list (a complex tree involving a couple of thousand pages) under the Bookmarks menu. Both browsers include a file manager that lets you download multiple files at once and pause or resume a download. The download managers keep track of all the files you download, with persistent information on date, size and status.

Both browsers offer automatic pop-up blocking, which keeps a lot of annoying ad windows at bay. This feature was available to IE users only in the form of third-party add-ins until the most recent revision of IE 6 (the upgrade inside the 250MB Service Pack 2 update for Windows XP).

The overall design of the browser window is very similar in both. Netscape opts for a rather bland and colorless scheme, while Firefox uses a simpler, cleaner interface with a tad more color. It's easy in both to apply different skins, though I wasn't impressed by any of the skins that are currently available. Netscape's display has more going on, with more options and apparatus inside the sidebar (including the AOL Instant Messenger buddy list). Firefox's slightly simpler sidebar was turned off by default.

BROWSER STATS

IE had the lion's share of users in October 2004, but other browsers have hung on.

Internet Explorer 6	69.6%
Mozilla	17.2%
Internet Explorer 5	5.7%
Opera 7	2.2%
Netscape Navigator 7	1.3%
Netscape Navigator 3	0.2%
Netscape Navigator 4	0.2%
Other	3.6%

SOURCE: W3SCHOOLS.COM

One difference could be important: Firefox's menu took me directly to my current e-mail client, Microsoft Outlook, and the menu item even indicated when I had new messages. Under Netscape, clicking on mail opened up Netscape's own mail reader and then asked me to set up an account.

Firefox lets you set up "live bookmarks" with which to view rich site summary news and blog headlines directly in the bookmarks tool bar or bookmarks menu. When a site is enabled for live bookmarks, an orange RSS icon appears on the bottom right corner of the browser (for more on RSS, see QuickLink 46266). To set up the link, click on the icon to bring up a dialogue for adding a new live bookmark.

Both Netscape and Firefox support a variety of extensions — add-in programs for new functionality — but many more are available for Firefox.

Overall, the differences between the two browsers are small. Firefox is more adaptable and less monolithic in its approach to nonbrowser functions, which might make it a better choice for some enterprises. For Windows systems, Firefox 1.0 is a 4.5MB download, while Netscape 7.2 takes 11.8MB for the basic browser setup and 24.8MB for the entire package. Versions of both are available for Linux, Mac OS X, Solaris x86, OS/2, AIX and BeOS. Both browsers are also available in a variety of languages.

OPERA

Opera started out as a research project at Norway-based telecommunications firm Telenor ASA. In 1995, Telenor spun off Opera Software ASA, which released the first public browser a year later. Since 2000, Opera has been a free download for personal use.

Oslo-based Opera began with different priorities. While its competitors became larger and more complex, Opera wanted its offering to be small and quick with a low memory footprint. Although Opera claims to be the fastest browser, I found that Netscape and Firefox both loaded pages slightly faster. All beat IE by a country mile.

Opera introduced the background loading of pages, batch opening of bookmark folders, and fast-forward and rewind functions, which anticipate where you might surf to next and fetch those pages before you request them. Opera adds notes, skinning to change the browser's look and session management that lets you close and restart the browser with all your previous pages automatically restored.

BROWSING, THE BEGINNING

In 1991, Tim Berners-Lee created software that would display and interact with HTML documents. Two years later, another software product, using graphics and multimedia to cruise the then-new World Wide Web, emerged from the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign. That product, NCSA Mosaic, was the most revolutionary software to come along since the Macintosh operating system a decade earlier.

The leader of the Mosaic team, Marc Andreessen, started Mosaic Communications Corp. (which became Netscape) to create the commercial browser that became Netscape Navigator. Netscape was a phenomenon as a concept, a product and a company. It grew big enough fast enough that Microsoft realized it had to compete. Microsoft bought a small browser called Spyglass, which was based on the Mosaic code, then modified it and renamed it Internet Explorer.

That original version of IE appeared in 1995. It had problems, but its price (free) and availability (bundled with Windows and Microsoft application software) made it a quick success. In the first few years, Microsoft improved IE significantly with each new release, until it became better and more reliable than Netscape. IE quickly took over the browser market. Netscape, meanwhile, lost most of its user base and revenue, and the company was acquired by America Online Inc., which later merged with Time Warner Inc. Most users eventually lost interest in the Netscape browser. IE is installed automatically with Windows, which is sufficient for most users.

– Russell Kay

Early versions of Opera opened multiple browser pages inside a single parent window. Since 6.0, single-document and tabbed modes have also been available, plus a mode that integrates Web browsing into fixed presentations.

Opera's mouse gestures feature is interesting. To move back to the previous page, just hold down the right mouse button and move the mouse to the left. If you move right, you go forward a page — a clever system.

I found Opera harder to learn than the other programs. For example, the process of importing IE favorites into the Opera's bookmarks isn't obvious. It's buried three levels deep in the menu structure, and when I did the operation, there was no indication that it had succeeded or failed, nor could I find where the program had put my links. While setting up folders for quick reference, I found Opera's dialogue boxes attractive but often unclear as to what data they needed. The help files were only so-so.

Unlike the Mozilla twins, Opera makes you look at paid advertising banners. They're not obtrusive and don't affect performance, but you can buy an ad-free version for $39. Opera 7.54 is available for Windows, Mac OS, Linux, FreeBSD and Solaris. The basic Windows download is just 3.4MB, though adding Java brings it up to 16.2MB.

RECOMMENDATIONS

IE, the de-facto standard for Web browsers, has served us well for many years. If it suits your company's needs, perhaps there's no reason to change. I started using IE shortly after it first appeared and quickly preferred it to Netscape Navigator. Despite some problems, I was a steadfast IE user and Netscape skeptic for years. I tried out Mozilla betas and Opera, but I always found that they either offered no big improvement over IE or made my heavily loaded Windows systems unstable. Unfortunately, IE has been riddled with security problems, and Microsoft's efforts to secure the browser have been only mildly successful.

About four months ago, I began using Firefox as my primary browser. With the September release of 1.0 (no longer beta), I can recommend Firefox without reservation. Opera is a good choice for many — perhaps the best choice for an older computer that's light on memory or CPU power — but I find Firefox easier to use. **50296**

Kay is a Computerworld *contributing writer in Worcester, Mass. You can reach him at russkay@charter.net.*

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DOCUMENTS Get Smart

By combining code and content, XML-enabled documents promise to change the way people interact with key business systems. By Kym Gilhooly

MICHAEL KLEIN

DESPITE PAPER'S IMAGE as an outmoded and costly conveyor of information, businesses still love to push it. It's tactile, familiar and, in many cases, represents the primary way that companies interact with employees, partners and customers. Yet the difficulties inherent in tracking, storing and rekeying data and moving paper around take a huge financial toll on businesses. Even those documents that have been converted to an electronic format tend to be largely static. What might it mean to business efficiencies if corporate documents could become active in the processes they front and adapt as needed? What if they could become, well, smart?

If electronic documents aren't yet ready to do all of our work for us, some of them are at least pitching in. Smart documents, alternatively referred to as "intelligent" or "active" documents, are dynamic containers that use embedded, executable code to participate in business processes. Smart documents primarily use XML, which can agnostically represent data types and is highly portable. These documents can streamline processes by launching workflows, moving data to and from back-end databases and updating themselves as business rules dictate.

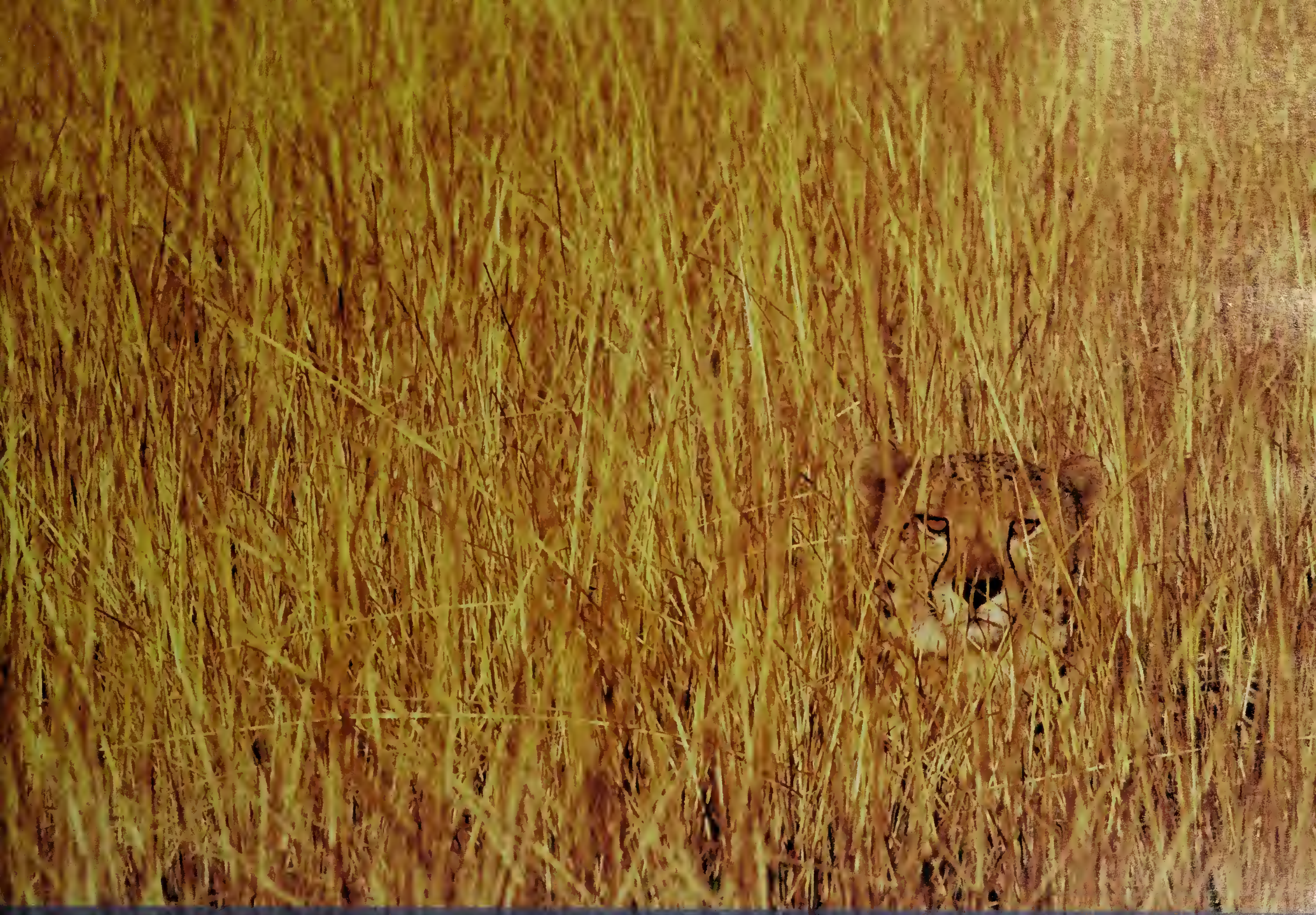
Proponents believe that active documents will change the way businesses control knowledge and how users interact with it — facilitating everything from streamlined operations and enhanced collaboration to improved regulatory compliance. But while some enterprises can realize returns on investment by automating a single, costly process through a smart document interface — insurance benefits enrollment or payroll deduction changes, say — the upfront design effort needed to re-engineer processes, map workflows and define XML schemas for XML repurposing can be complex.

"A smart document is a powerful end result, but the design effort is not for the faint of heart," says Carl Frappaolo, a vice president at Boston-based consultancy Delphi Group. "The challenge is in taking a step back and pulling processes apart. In order to teach a process to a document, you have to decompose it into finite pieces."

This decomposition, he says, requires that business analysts work closely with IT to determine where business intelligence exists, design business rules that trigger document behavior and map the workflows that dictate a document's life cycle.

Though analysts say active documents

Continued on page 38



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Continued from page 34

will become key components in dynamically updating technical documentation and other frequently changing records, the biggest application of the concept today is in e-forms. Jumping into the market with established providers such as PureEdge Solutions Inc., Verity Inc. and FileNet Corp. are big guns Adobe Systems Inc. and Microsoft Corp.

San Jose-based Adobe's Intelligent Document Platform is a services-oriented architecture that includes forms development and workflow components, as well as its ubiquitous Acrobat Reader client (now called Adobe Reader) and Portable Document Format (PDF). Microsoft, meanwhile, has built extensive support for XML and Web services into its Office 2003 suite and offers InfoPath, an e-forms development and routing product.

"Paper forms are extremely expensive to produce, and they're limited in terms of what they can capture. With a smart form, data callouts and process logic enable it to gather data from and deliver it to back-end applications," says Toby Bell, an analyst at Gartner Inc. in Stamford, Conn. More important, he says, a smart form "knows where it's supposed to go and what it's supposed to do."

Serving Internal Customers

Bright Horizons Family Solutions Inc., a provider of employer-sponsored child care and early-education services, saw opportunity in using e-forms to automate employee status change processes.

With 16,000 employees in more than 500 locations worldwide, Bright Horizons found that paper-based processes for employee changes were extremely time-consuming and error-prone, says Tim Young, vice president of IT. The Watertown, Mass.-based company uses Adobe's Intelligent Document Platform. Bright Horizons is automating employee benefits and payroll form processes, and it plans to do the same for time sheets and capital expenditure forms.

"We wanted to better serve employees and lower operating costs," says Young. "We have all these checkpoints now built in with business intelligence behind the forms, so if authorization is needed, it's built into the workflow."

Bright Horizons has saved costs by prepopulating form fields. It does so by drawing data from a SQL Server database when employees log into its intranet, providing guided assistance through drop-down menus, and using business intelligence that enforces the way fields are filled out. After a form is completed, it's converted to a PDF document and is automatically routed via Adobe's workflow server to appropriate managers and then to the company's payroll system.

Grants.gov, a portal where people can identify grant opportunities available from 26 U.S. federal agencies and apply for them electronically, uses software from Victoria, British Columbia-based PureEdge Solutions. The portal is one of 25 e-government initiatives that the Office of Management and Budget has launched.

As the middleman between granting agencies and applicants, the U.S. Department of Health and Human Services must carefully support the systems used by clients on both sides, says Grants.gov program manager Rebecca Spitzgo. For example, rather than requiring citizens using dial-up connections to stay online while filling out a grant application, the agency deployed PureEdge to make the application packages downloadable.

To view and complete forms, users run a downloadable client, says Spitzgo. Grants.gov uses PureEdge to build edit formats into data fields to ensure that they're filled out correctly the first time, as well as to perform calculations. When users complete a form, they click on a button to submit it.

Grants.gov then converts the received form to an Acrobat PDF file, creates an XML-formatted data file and sends both to the appropriate agency. Grants.gov doesn't dictate what agencies do with the XML data, but the majority use it to avoid rekeying data, Spitzgo says. Grants.gov's staff has designed a global XML schema for pieces such as its grants application face page so that agencies can reuse it.

THREE BASIC VARIATIONS OF ACTIVE DOCUMENTS

1

ACTIVE FORMS

These interact with users and forms-based processes, such as insurance, payroll and benefits programs. Using business rules, active forms ensure that fields are filled out correctly and that they can populate themselves with user information from back-end systems. After an interaction, they can trigger a workflow that routes them to the appropriate individuals and updates pertinent databases.

2

ACTIVE DOCUMENTS

Characterized in part by their ability to be paginated, these non-form-related documents might include technical manuals, customized proposals or individualized 401(k) reports that update themselves as back-end data changes and new information is entered on the front end. Technical documentation for an aircraft, for example, might enable a mechanic to click on a link to order parts as a step in a supply chain process, with the document updating itself when new parts are installed.

3

ACTIVE GRAPHICS

Typically part of larger active documents, these consist of XML-based graphical elements, such as scalable vector graphics, that interact with text and the user. An active graphic might delineate an engine assembly and enable the user to "fly through" the structure, updating itself as the larger document changes.

SOURCE: JOSHUA DUHL, IDC

XML Marks the Spot

Today, XML is a primary enabler in the creation of smart documents. XML helps define document elements such as pagination, enables content to be separated from presentation and allows it to be reused and retargeted as needed.

Smart documents typically use Web services structures for invoking and receiving data values, says Joshua Duhl, an analyst at IDC in Framingham, Mass. Web services are increasingly wrapped around key enterprise systems, such as accounting, inventory and content management databases, to transport data. "For certain kinds of applications with lots of updates — supply chain applications, health care processes — you'll want an active document," he says.

In a pilot of LiquidOffice e-forms software from Sunnyvale, Calif.-based Verity, the state of North Dakota will use XML to perform validations, do calculations and prefill user data into a variety of forms.

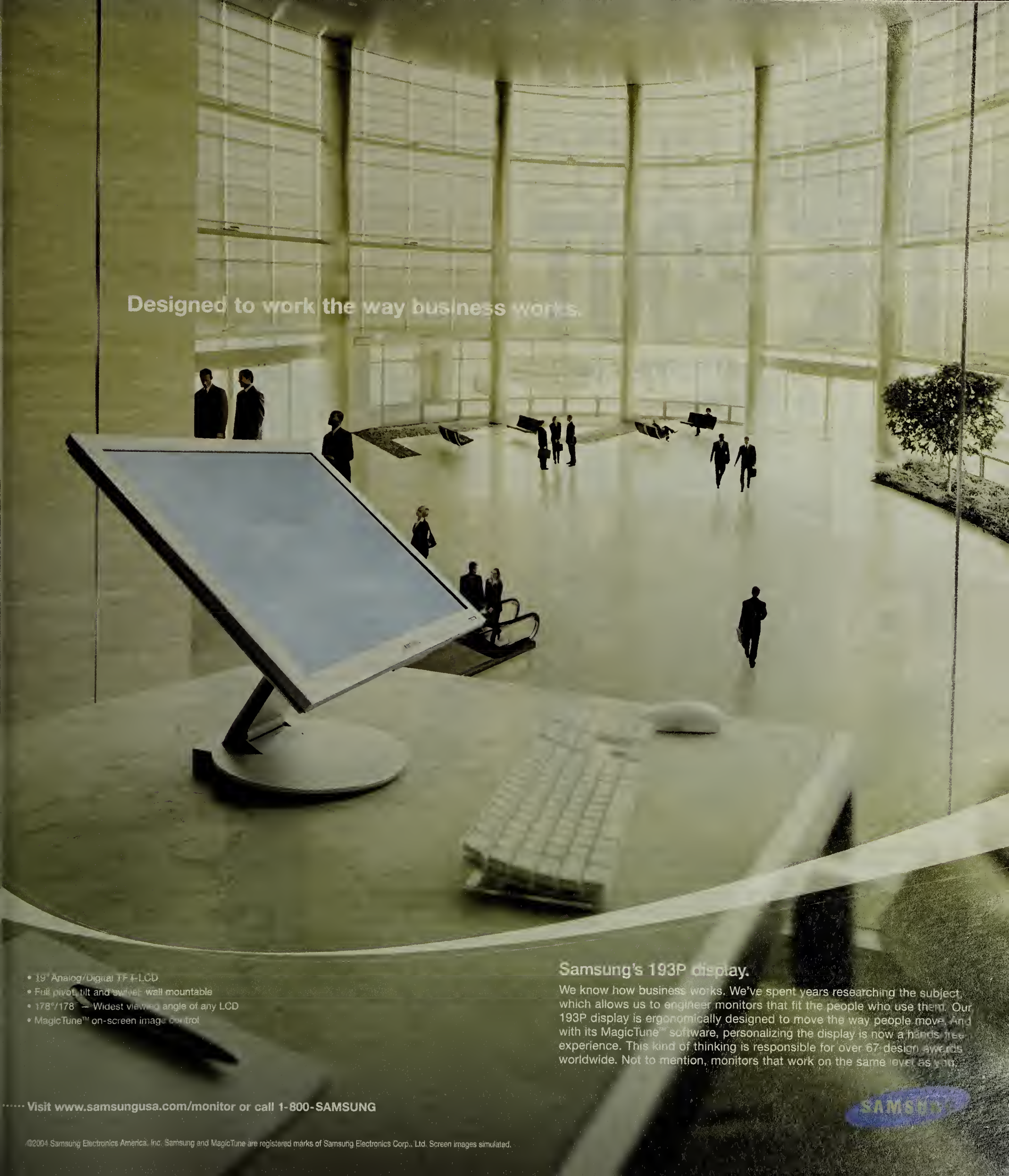
"XML provides some opportunities we've been seeking for a long time, eliminating data entry and rework," says Bill Roach, the state government's CRM enterprise EDMS coordinator. "When we have the information in XML, we can package it up and send it to [back-end] applications automatically. We can have it create an image or a PDF or store it in its native format and just push it into a records-retention system." LiquidOffice is just part of the state's much larger EDMS (electronic document management system) infrastructure, which includes FileNet's Content Manager, Verity's TeleForm and KnowledgeLake Inc.'s workflow products.

John Gartrell, a project analyst at Seattle-based Sound Transit, expects the extensive XML capabilities in Microsoft's InfoPath and Office 2003 suite to ease data sharing with back-end systems such as its PeopleSoft ERP software. The regional transit system used InfoPath to convert a paper-based payroll process that took a month to complete to an e-forms process that takes four to eight hours. Sound Transit isn't using XML yet, Gartrell says, but "we're integrating InfoPath with our SQL Server 2000 database, with InfoPath handling all the XML."

As their role in the enterprise expands, active documents will need to better support newer capabilities such as digital signatures, says Duhl. Because of regulatory compliance requirements such as those in the Sarbanes-Oxley Act, vendors also need to ensure that electronic documents can be rendered exactly as they would be on paper. Adobe's PDFs excel in this area, says Duhl. Meanwhile, businesses must address numerous infrastructure and process issues to exploit the benefits adaptive documents can bring.

"While active documents are a great idea and interface, even at the forms level they affect business processes at a very fundamental level," says Duhl. "It goes far beyond technology to the way people work."
50149

Gilhooly is a freelance writer in Falmouth, Maine. Contact her at kymg@maine.rr.com.



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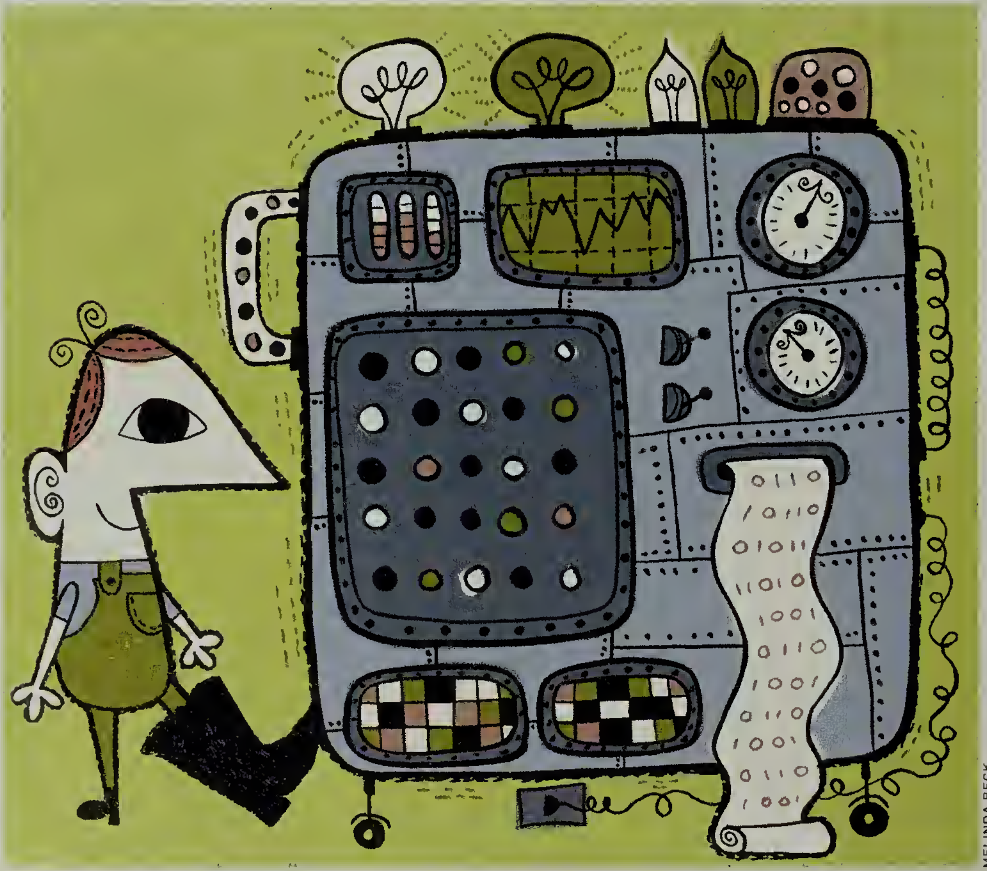
GIVING BUGS THE BOOT

Micro-reboot your IT troubles away.

BY TODD R. WEISS


MELINDA BECK

FUTURE WATCH

IT'S BEEN AN IT MANTRA FOR YEARS: "When all else fails, reboot."

Rebooting often works, but isn't there a better approach to the problem of buggy software that crashes your computer and takes your valuable data with it?

That idea has been the focus of researchers at Stanford University and the University of California, Berkeley, who have been working feverishly to find better ways to bring computers back from the brink of disaster.

The researchers are seeking a fresh alternative to rebooting. Thinking backward, they reasoned that it might be a good idea to give up on the impossible job of making bug-free software and instead look for ways to recover from failures without losing data or time.

That's the concept behind "recovery-oriented computing," a 180-degree turn from traditional thinking. The idea is that since software can't be created without crash-causing flaws, it should be built to reboot much faster, allowing users to get back to work almost instantly.

"The idea is pretty simple: If availability is the fraction of time that you're up, then recovering fast is more critical than reducing the number of times that crashes happen," says David Patterson, a computer science professor at UC Berkeley.

"In the dawn of computing, people thought software bugs would go away, and they haven't, so now we need ways to co-exist with them," he says. "I think it's a fact to live with rather than a problem to be solved."

One way to do that is through an evolving technique called micro-rebooting, which quickly reboots just enough of the program processes to get the system stabilized and back on track for the user.

A micro-reboot is specific to one problematic area of the software's code and doesn't affect other parts of the application, so data in the processing pipeline is unaffected by the reboot.

Led by Patterson and Armando Fox, an assistant professor of computer science at Stanford, the project began in late 2000. Patterson, Fox and a team of graduate students had seen evidence that systems dependability could be improved. Some IT systems for use in avionics, spacecraft and health care were ultradependable because they had to be, but they were costly and complex, and that kind of reliability was impractical for typical IT use. Another way had to be found.

DAVID PATTERSON: "People thought software bugs would go away, and they haven't."

Heading Off a Crash

The researchers are experimenting with algorithms that watch over system processes and sense when something has gone awry, and a crash is imminent. The algorithms focus on determining the normal baseline operations of applications, and when they see a deviation from the baseline, the system can quickly do a micro-reboot without the user even knowing that a problem has occurred.

Keys to the research have been isolating the faults and providing redundancy so the system stays alive while the instant recovery takes place. The researchers are exploring techniques that could encourage software and hardware designs that drastically improve the "restartability" of programs and devices.

ARMANDO FOX: "To make micro-rebooting industrial-strength, obviously there's still more work to be done."

The problem with the traditional reboot is that the CTRL-ALT-DEL process takes too long. A micro-reboot is several orders of magnitude faster, Fox says. "It's not guaranteed to fix the problem, but it's guaranteed not to make things worse, so there's no reason not to try it," he says.

The researchers have been using the Java 2 Enterprise Edition application server in their studies because it's so widely used and because, as open-source software, it's readily modifiable.

J2EE is also a good starting point for the research because its applications use a modular design structure with clear boundaries between software modules, making it easier to stop and reboot one process within a part of the application.

Trickle-Down Technology

While J2EE-based Internet applications on corporate servers have been the focus of this research so far, Fox says the technology will trickle down. "Desktops have so much performance today, maybe some of that can eventually be traded away for dependability," he says.

But challenges remain. "There's work to be done on other microrecovery methods," explains Fox. "We've identified a way that we can work together with people who use statistical monitoring algorithms," but that has created issues with the algorithms and security, he says.

What the researchers still hope to learn is exactly what's good and what's bad in J2EE that helps to solve the rebooting problems, Fox says.

Also needed is a body of research that will address the same issues in other widely used computing systems in the future.

Micro-rebooting could be built into J2EE application server software within the next two to three years, Fox says. However, "to make micro-rebooting industrial-strength, obviously there's still more work to be done," he says.

It would be more challenging to include micro-rebooting capabilities in large, proprietary applications, because the applications aren't modularized. But researchers could certainly work on that capability for future versions of the software, Fox says.

The ultimate micro-rebooting system would prophylactically go through your PC or server and reboot it frequently in the background, refreshing it without causing you to have any visible failures, Patterson says.

Corporate IT is beginning to accept the idea of fast, automatic rebooting, according to Fox. "Now you don't have to convince people about the desirability of this," he says. "Now they understand why it's important to prevent crashes on their corporate IT systems." 50392

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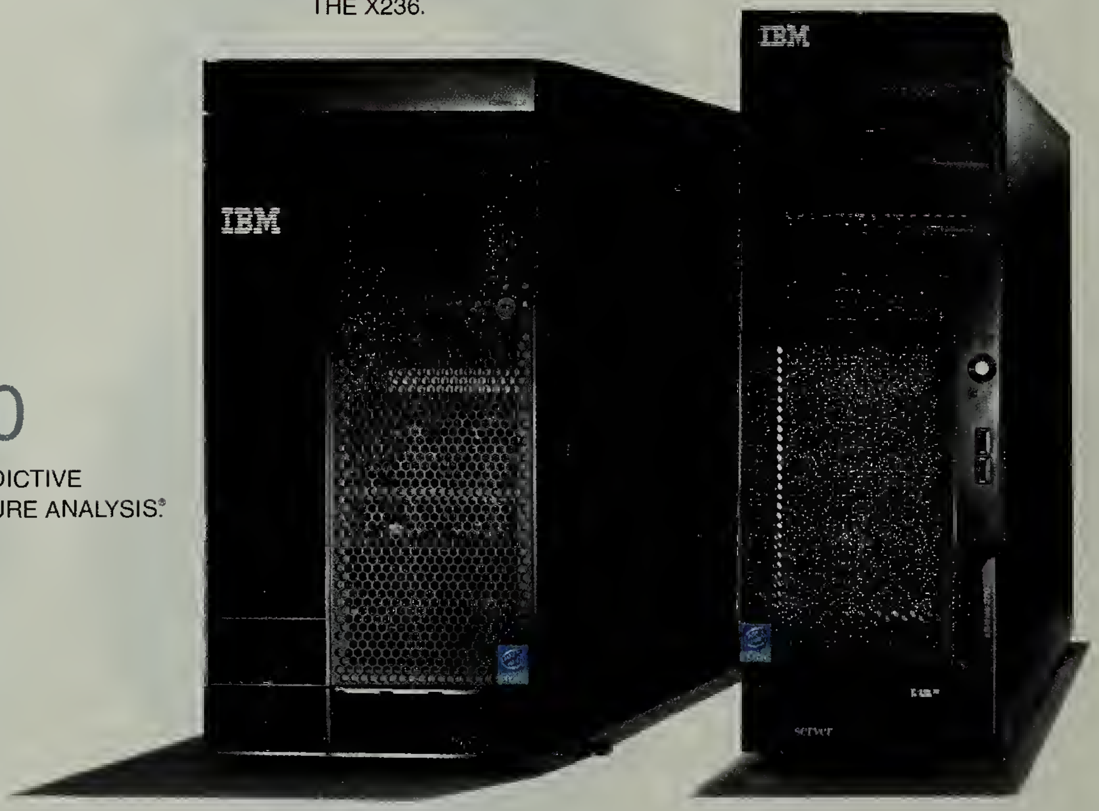

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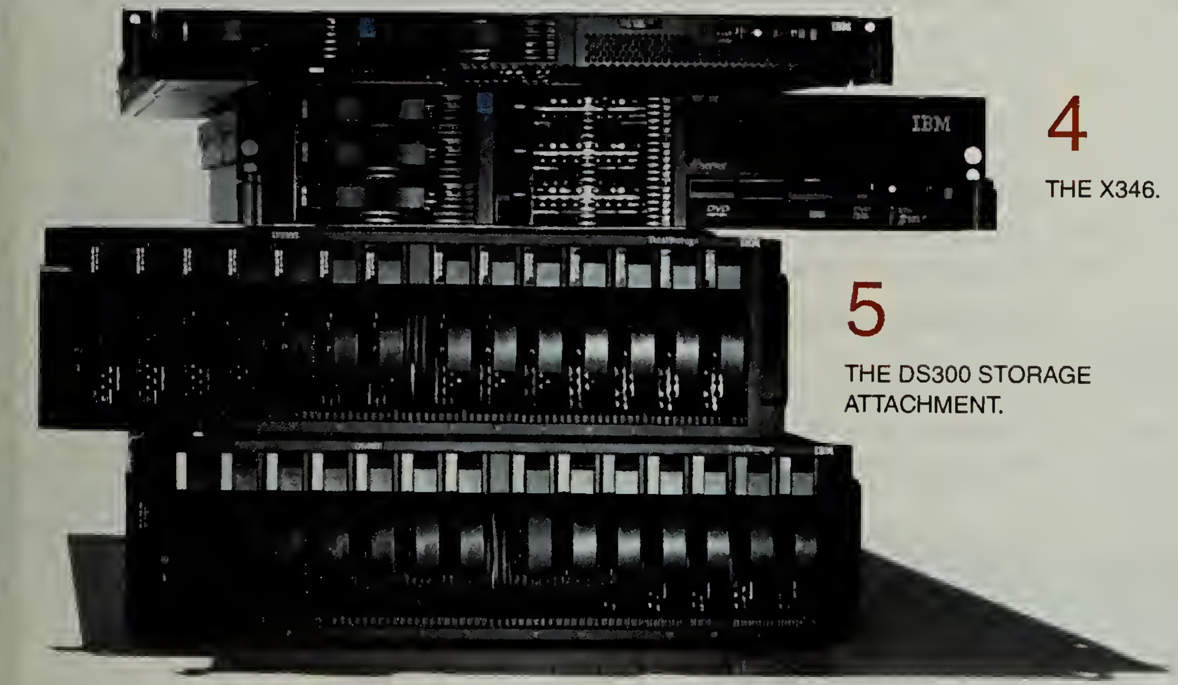

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Crossing Boundaries

Groove's Ray Ozzie says his mission is to make computers more effective communication tools.

As the creator and chief developer of Lotus Notes, **Ray Ozzie** *is responsible for putting groupware/collaboration software on the map, with more than 100 million people around the globe using Notes.*

Ozzie is the founder and CEO of Groove Networks Inc., which makes collaboration software. Prior to his work on Lotus Notes, when he was president of Iris Associates, Ozzie was instrumental in the development of Lotus Symphony and Software Arts' TK Solver and VisiCalc.

In a recent interview with Computerworld*'s Tommy Peterson, Ozzie talked about what drives his interest in technology-facilitated collaboration and its relationship to the changing nature of business.*

You're famous for Lotus Notes, and you describe Groove as a logical extension of your work in collaboration. Why does this particular problem in computing fascinate you? My base personality characteristics are relatively introverted, so the concept of me expending a career doing stuff that helps people communicate more effectively is kind of ironic. In PLATO, a computer-based education system, I was a systems programmer. I was fortunate enough to be exposed to early versions — this was the '70s — of e-mail and online group discussions and interactive chat like IM.

There was one person I communicated with on a software project; he was actually the project lead. I dealt with him in chat a lot, and he was a very, very slow typist. The chat on PLATO was a character at a time — you'd see them typing as opposed seeing a line at a time. It just drove me nuts.

After some number of months, I finally met the guy, and he's a quadriplegic. He was typing with a stick. And if there was a crystallizing moment for me, that was probably it. It became really apparent that really I was working with someone's mind as opposed to anything else about them.

The next step in your career was a job with Data General doing data processing systems. How does that fit in? I went to work at Data General, [and] I was shocked because I had spent years working in this online community environment dealing with people and using the computer as a communication tool.

And then we came out here to "super mini land," or whatever it was at the time, and it was still data processing. At that point in time, I and a number of us who had been exposed to PLATO basically said, "Look, we've got to re-create that environment. We've lived this online community life; we've got to figure out a way to re-create this."

How long did it take you to find a way to do that? Several years went by before I was actually able to start putting the plans together in what actually became Lotus Notes. It was no coincidence that Lotus Notes was called Notes, because the PLATO discussions were called Group Notes, the PLATO e-mail was called personal notes. We were just trying to re-create a feel. I didn't really understand the nature of business or the nature of how things really worked, aside from Data General, but I knew that it was very effective in the environment I was at for development and for other projects that people were doing — why couldn't that translate into a business environment?

As I started to build it — and this was the mid-'80s — I started to connect more with the potential customer for this thing and decided yes, there is need for this. This was the "re-engineering the corporation" era. I think our goal, if there was a goal, was to utilize technology to enable people within an organization to work together effectively across group boundaries.

RAY OZZIE

COMPANY: Groove Networks Inc., Beverly, Mass.

TITLE: Founder and CEO

ACCOMPLISHMENTS: Beginning with his work on the groundbreaking PLATO project at the University of Illinois, Ozzie has worked on developing collaborative systems his entire career. He is the inventor of Lotus Notes and has been inducted into the Computer Museum Industry Hall of Fame. Ozzie served the National Research Council committee that produced the landmark CRISIS report on the societal impact of cryptography.

And now, with Groove, your aim is to move beyond an organization's boundaries? That's exactly right. Notes was significant because of the changing nature of the organization as defined at the time by Michael Hammer and others re-engineering the corporation. When we started Groove in '97, it was largely based on a viewpoint that the nature of business was changing not just the organization, but that business itself was restructuring from big, vertically oriented corporations. It was becoming more of a mesh of companies interacting with one another. This was based on my experience of what people were trying to use Notes for and were having a hard time doing, in terms of deploying Notes across organizational boundaries.

So Groove was based on the fundamentally changing nature of business. Essentially, what we've learned in the past few years of people using Groove is that it's not just the nature of business that's changing; it's the nature of work itself that's changing. You're working with multiple companies, and you're working with people in a geographically distributed manner. You're working at home and in the workplace. The trend of decentralization that Notes started within the corporation is moving between corporations, and now it's touching individuals.

What's the specific pain you're trying to ease for users now? As was the case with Notes, a lot of what we've had to build up with Groove to make it more useful is infrastructural — getting the security, the systems management, a lot of the things in the base infrastructure up to the level they're at has consumed a lot resources. What really makes Groove valuable to businesses is how quickly they can adapt it to their business processes, the way that they work.

The thing that makes it useful to an individual is how much they can integrate it into their work environment — it's true of both businesses and individuals. A lot of what you see us doing is working in the area of our forms package and working on our integration to different back-end systems such as Siebel, SAP and PeopleSoft, Oracle databases — things people have already made investments in. The quicker we can integrate with those business processes, the quicker we can return value to corporations. ◐ 50340

COLLABORATIVE FUTURE

For more of our interview with Groove's Ray Ozzie, visit our Web site:

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www.computerworld.com

Taking the Leap to PEAP for Wireless

Access points are proliferating, but there still are no formal policies or standards in place. Someone has to keep an eye on things. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

IT'S STRANGE. Our company has yet to embrace wireless as a global deployment, yet every couple of months, the number of access points seems to double.

The other day, I received a call from one of the lab managers. He wanted to deploy a bar code system for asset tracking. The bar code reader would transmit information via Bluetooth to a Hewlett-Packard iPaq, which has a built-in wireless card. He wanted to deploy several access points so that the iPaq could communicate asset tag data in real time to a back-end database residing on our corporate network.

Another call came from one of our briefing centers, where the manager wanted some access points so that visitors could check their e-mail, make airline reservations, print itineraries or do general Internet browsing. I also found out that upper management has approved the installation of access points for every new facility that comes online. That's a lot of access points, since we're expanding in India, Singapore and China, and we've added offices in Virginia and other locations.

But despite this growth in wireless use, we still have no formal policies for wireless deployment or a project manager to oversee the spread of access points. Instead, network engineering and I are driving the entire process. Last week, we decided to abandon our Cisco LEAP implementation because of perceived vulnerabilities in the way that protocol handles passwords. Unless a strong password is used, hackers can easily compromise the wireless connection and gain access to our network. And having concluded that no matter what we chose there would probably be an exploit or published vulnerability at some point, we decided to deploy two-factor authentication to force people to use an RSA SecurID token before they can associate to an access point. Our hope is that even if a particular protocol becomes compromised, the two-factor authentication process will continue to protect us.

We explored several options and found that the only way to make use of our existing deployment of RSA SecurID tokens while getting two-factor authentication was to deploy PEAP. PEAP, which stands for Protected Extensible Authentication Protocol, was developed jointly by Microsoft, RSA Security and Cisco for transmitting authentication data, including passwords, over wireless nets. What sets PEAP apart from LEAP is that communications between the wireless client and the authentication server (Cisco ACS) are tunneled. With LEAP, the authentication information is passed in clear text. With PEAP, the authentication data is transmitted after the encrypted tunnel is created.

Working Things Out

We had a little trouble at first. Our users have Dell laptops that come with built-in wireless cards and client software called Dell TruMobile that's used to control the cards. The client has to generate a digital certificate to facilitate the tunneling, and it has to be compatible with Cisco Compatible Extensions Version 2 so it can interoperate with Cisco's version of PEAP.

The Dell TruMobile client is supposed to be compatible with CCE-2, but the implementation wasn't very straightforward, and documentation was lacking. After a lot of effort, we were able to get the Dell laptops to work with the Cisco access points and prompt us for a SecurID token code.

There are still some issues to work out, but I think that at the end of the day, we'll have a working RSA SecurID-protected wireless infrastructure.

One thing that the vendors are still trying to help us resolve is a 60-to-90-second lag before the SecurID dialogue box comes up; that's just too long for employees to wait.

One cool aspect of our deployment is that we'll be using virtual LAN tagging to segregate various levels of access to our wireless infrastructure. This means we don't have to buy and install separate access points for SecurID-protected employees, who need access to our internal network, and for guests, who will be allowed access only to external Internet resources. With VLANs (also called 802.1Q networks), we can configure two separate networks, each with its own wireless Service Set Identifier (a sequence of characters that uniquely identifies a wireless LAN) for associating to the access point.

For example, an employee using an SSID of, say, "emp" will be prompted to provide a SecurID token before being allowed to associate to the access point and gain access to internal corporate resources such as Exchange mail, shared folders, the company intranet and human resources sites. Meanwhile, a guest using an SSID of "guest" won't be prompted for a SecurID token in order to get to the Internet. The employee and the guest are connected to the same access point, but the different SSIDs they use to do so give them different access rights.

Best of all, Cisco will let us use VLAN tagging to create as many as 16 separate VLANs. That gives us a lot of flexibility in the way we provision wireless networks for the enterprise.

To help out that lab manager who wants to do asset tracking, we'll probably create a third VLAN that will be accessible from the asset-tracking HP iPaqs, perhaps with an SSID of "track."

To manage all these access points, SSIDs and VLANs, we'll continue to use the Cisco Wireless LAN Solutions Engine, since we can also use it in our continuing efforts to detect rogue access points. I'll talk more about that in a future installment. ▶

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

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> **"There are still some issues to work out, but I think that at the end of the day, we'll have a working RSA SecurID-protected wireless infrastructure.**

SECURITY LOG

Security Bookshelf

- ***Wireless Networks First-Step*, by Jim Geier; Cisco Press, 2004.**

I'm frequently asked about beginner-level books on wireless technology. Well, if you're new to wireless, this is the book to have on your reference desk. Packed with useful information, *Wireless Networks First-Step* will get you up to speed on the latest and greatest wireless terms and technologies. Each chapter contains easy-to-understand explanations of various aspects of wireless technology, from the difference between TKIP and WPA to how to handle rogue access points. A nice feature is that each chapter has a quiz that lets you test your knowledge. This is a must read for those new to the field.

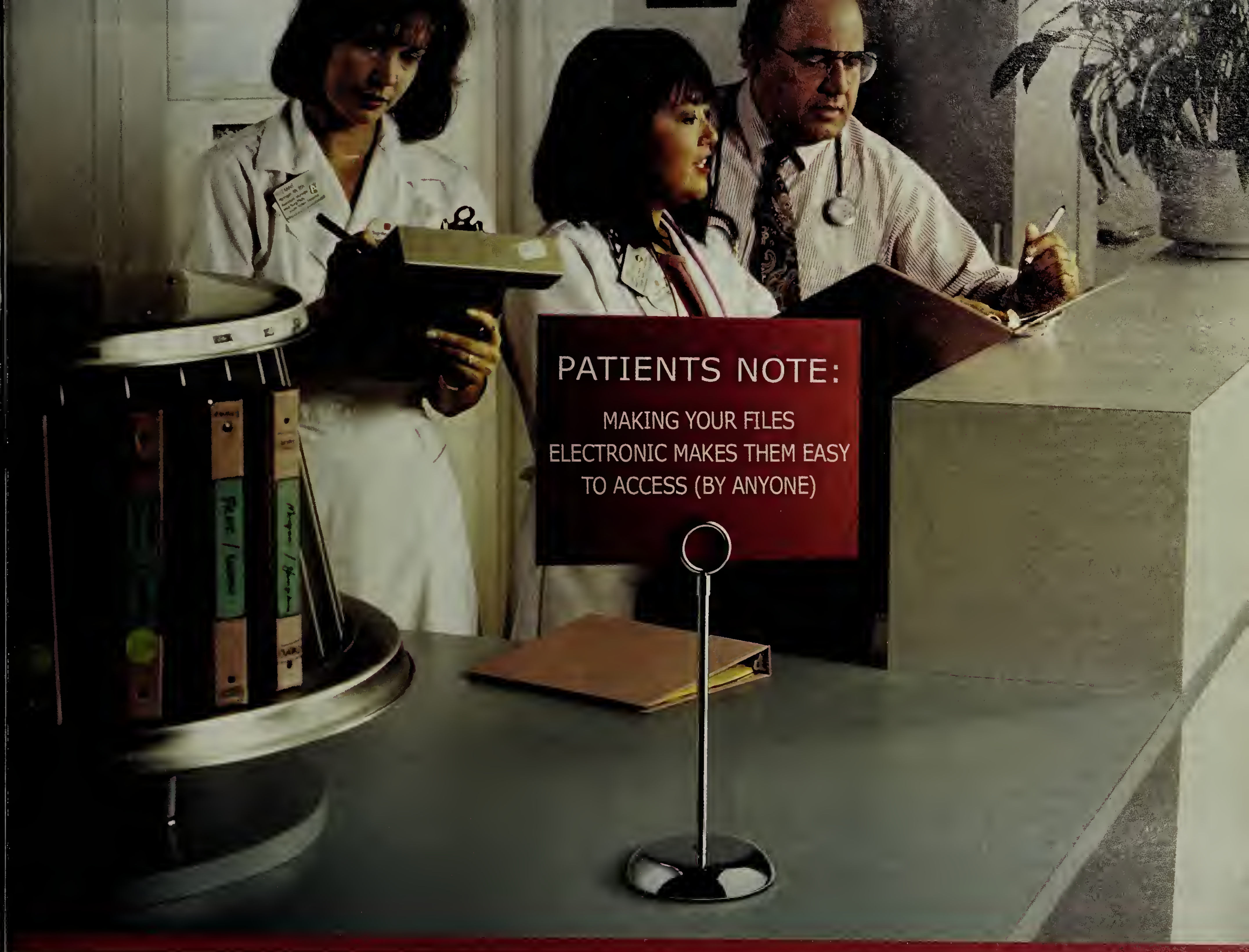
– Mathias Thurman

Sun Warns of Serious Flaw

Sun Microsystems Inc. has warned of a serious security flaw affecting one component of its Java System Web server line of products. The flaw, in the Java System Web Proxy Server, could allow a remote attacker to gain access to a vulnerable system. A buffer overflow vulnerability could then allow the attacker to crash either the Web Proxy Server process or the server's Admin Server process. With the privileges of the affected server process, an attacker could then execute malicious code on the server, Sun said.

There's no reliable way to tell whether the vulnerability has been exploited, Sun said, although the affected processes may crash as a result of a successful exploit.

Copenhagen-based security firm Secunia ranked the flaw as "highly critical," which is its second-highest severity rating.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Even if everyone knew about the problem, would anyone know the solution?

As every aspect of business migrates to the Web, sensitive information once sheltered is now exposed. Because browser-based applications pass through the entire security perimeter.

If that doesn't wrinkle your brow, in a recent study 70 percent of companies reported security intrusions, with an average of 136 annually.

The only real answer is a solution that knows exactly what your application's traffic should look like, and blocks everything else. A comprehensive solution that gives you complete control over who gets access from where and when, that can actually identify and filter application-level cyber attacks.

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BRIEFS

Dell to Offer New PowerEdge Server

Dell Inc. is expected this week to announce the PowerEdge SC1425 server, a 1U (1.75-in. high) device designed for high-performance supercomputing clusters or distributed server-farm environments. Dell will offer the new server in bundles ranging from eight nodes to 256 nodes running Red Hat Enterprise Linux 3. Pricing begins at $33,500 for an eight-node cluster.

Exabyte Announces Tape Autoloader

Exabyte Corp. in Boulder, Colo., this week announced its new Magnum LTO (linear tape open) Autoloader, a 2U rack-mountable system that comes with one LTO-2 drive and seven cartridge slots and provides data transfer speeds of up to 187GB per hour and 1.4TB native capacity. The autoloader is available now and sells for about $4,999 retail.

ScanSoft Releases Voice-to-Text App

ScanSoft Inc. has announced Version 8 of its Dragon Naturally-Speaking voice-recognition software. The new release features improved accuracy in voice-to-text conversions, converts speech into text at a rate of up to 160 words per minute and lets users control PCs using spoken words, according to the Peabody, Mass.-based company. Prices range from $99 to $795.

OpenBSD Unveils v3.6 of Its Free OS

OpenBSD 3.6 can be downloaded for free at *www.openbsd.org.* The newest version of the Unix-like operating system includes symmetric multiprocessing support for OpenBSD/i386 and OpenBSD/AMD64 hardware and an improved Dynamic Host Configuration Protocol server. OpenBSD 3.6 is also available on three CD-ROMs for $45.

CURT A. MONASH

Playing Catch-up on Analytic Technology

ANALYTIC TECHNOLOGY is on the rise. Business intelligence software expenditures are a growing share of the IT budget. Data collection and storage costs are increasingly driven by analytic uses. DBMS and enterprise application vendors are focusing their product differentiation efforts largely on analytics.

CURT A. MONASH is a consultant in Acton, Mass. You can reach him at **curtmonash@monash.com.**

Few organizations, however, are doing a great job of planning for the blossoming of analytic technology. True, many enterprises have a fairly careful design for the underlying data warehousing. But in most shops, departmental BI applications and analytic applications are installed almost willy-nilly.

It's time to take a more serious approach to analytic IT strategic planning, and not just because analytics represent a bigger part of your budget. Analytic technology simply has more parts than it used to, and many more points of integration, both within the analytic sphere and reaching out to transactional systems as well.

Let's examine five areas where analytic technology integration is of particular interest. In future columns, I'll talk about how to tie these and other considerations into a practical analytic IT road map.

Integrated monitoring, evaluation and information delivery. BI technology has historically included a mishmash of information delivery and analysis tools — ad hoc query, ad hoc reporting, enterprise reporting, multidimensional analysis, graphical data visualization and so on. These are getting streamlined and integrated in a new generation of technology, and it's about time.

Over time, classic BI technologies are becoming less important anyway. The user's central monitoring tool will be the portal or dashboard. That format first shows which metrics are outside expected ranges and only afterward (if ever) leads the user to the precise numbers in a report. This is often an improvement over traditional reporting-centric systems, which may spit out a lot of data and then send the user on a "Where's Waldo?" search for anomalies. In cases where time really is money, alerts about the anomalies can be sent straight to a pager or other mobile device.

Monitoring, evaluation and transactional apps. BI technology has historically been read-only, running against a copy of the transactional database. So integrating it with transactional systems might seem technologically unnatural. But let's take a business process view. When a manager notices or is alerted to an anomaly in a metric — then what? The "what" should often be a process leading to an action, perhaps in production or purchasing, but potentially in almost any area of the enterprise.

A whole new generation of hybrid analytic/transactional applications is emerging to support these new processes. You can wait to get them in packaged form, or you can roll your own, perhaps using some process specification tools. But either way, the processes — and hence the applications — are likely to be very important to you.

In-line analytics. A classic job for analytic technology is to figure out exactly what to offer to which customer, so as to make the relationship as profitable as it can possibly be. In certain environments, such as call centers at cell phone service providers, doing this analysis in real time is hugely important. So analytic tools — often statistical ones — need to drive transactional systems in an orderly way. Meanwhile, certain consumer marketing applications are trying to regularize testing and statistical analysis as part of, say, a transactional direct-mailing business process.

Planning and everything else. Almost every organization has a horrific budgeting and planning process. But modern enterprise planning technology has somewhat streamlined the process in thousands of installations. Even so, most enterprises' forecasts are still incredibly naive and poorly supported. As planning technology evolves, transactional applications, monitoring/evaluation, planning itself and sometimes even statistical analysis should be able to combine to create better and more timely forecasts, and more useful project plans.

Integrated analytic data management. There are some hard-core server technology issues to consider, too. Integrating enterprise reporting, ad hoc queries and various kinds of analysis into a single server can be a demanding task that bears close evaluation when you select analytics vendors. But the server-side issues are even broader than that. DBMS vendors are doing important work in data aggregation. BI vendors are doing their own important work to make the DBMS features as unnecessary as possible. Data caching integrates into application servers in interesting ways, and some prominent BI products include their own application servers. And vendors of specialized MOLAP (multidimensional online analytical processing) database servers are ever more frantically trying to find important uses for them as their core benefits are usurped by advances in relational DBMS technology.

That's just a sampling of the tough issues involved in setting your analytic technology plans. Next time, I'll talk about how best to deal with these and other analytic challenges. **50499**

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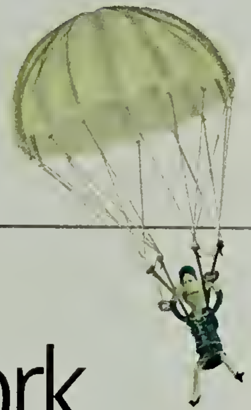
Nokia for Business



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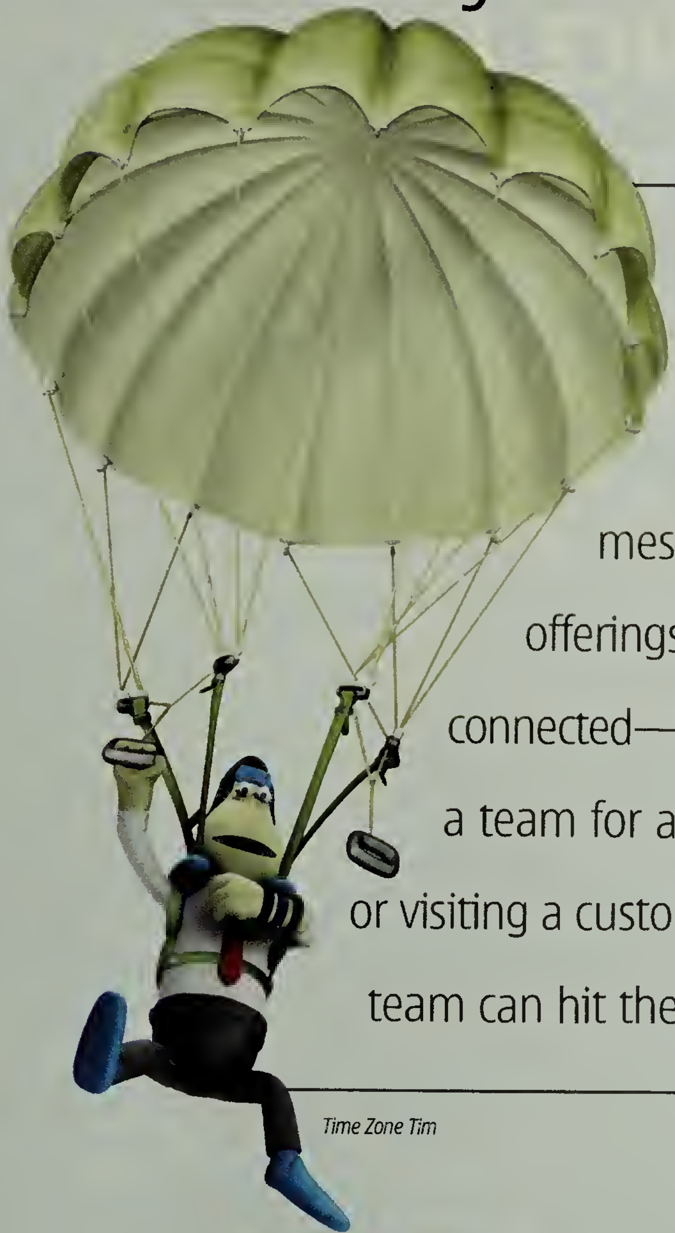

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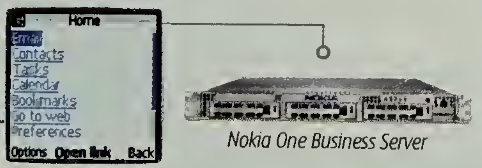

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IT MENTOR

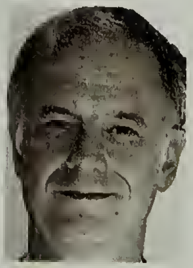
After the Layoff

Outplacement services can be a big waste of time, but when managed well, they can get you back on track fast. Carnival CIO Doug Lewis explains how to take charge. **Page 56**

Q&A

Hiring Nerds

Johanna Rothman, author of a new book on finding and recruiting techies, lays out some practical strategies for companies lucky enough to be staffing up. **Page 58**



OPINION

Outsourcing: First Ask Why

Companies outsource for all sorts of reasons, but Bart Perkins says that identifying and prioritizing your motivations early can help you make better outsourcing decisions later. **Page 60**

JONATHAN WEINER

GOING Down FAST

[BY JULIA KING]

SLASHED RESOURCES AND IMPOSSIBLE DEMANDS HAVE CAUSED IT MORALE TO DISINTEGRATE.

SKEPTICAL, STRESSED, SCARED, SUCKED DRY. This is how IT professionals feel about work these days. Other telling words that surfaced repeatedly during more than 30 interviews and in 200 written survey responses include *fear, loathing, disgust* and *dread.*

To be blunt, IT worker morale sucks, and it's getting bleaker by the day.

"It's the worst I've ever seen," says a 22-year IT veteran in the banking industry. "Morale is twice as low this week as it was last week."

Research backs up that claim. In June, nearly three-fourths of 650 companies surveyed by Meta Group Inc. reported having morale problems among their IT staffs. The year before, two-thirds of executives cited poor worker morale as an issue.

No wonder spirits are plunging. The U.S. technology sector suffered yet another round of widespread layoffs during the third quarter, according to a recent report by Chicago-based recruiting firm Challenger, Gray & Christmas Inc. "High-tech job cuts are on the way up as the end of the year approaches," says CEO John A. Challenger.

Job cuts in technology jumped 60% between July and September to 54,701, compared with 34,213 layoffs in the second quarter, the report said. To make matters worse, the growing number of layoffs is not being countered by any move to hire, Challenger says.

And job insecurity is just one part of the problem.

Boosting morale should be near the top of almost every CIO's strategic agenda. But before management can devise strategies to address the problem, it must truly understand the causes of IT workers' misery. Frequently, it's not about money or challenges. Instead, workers point to slashed resources, unrealistic expectations, willfully blind management and inane policies and procedures as some of

JONATHAN WEINER

AFTER THE Outsourcing

[BY MATT HAMBLEN]

When a company decides to outsource jobs or send them offshore, the morale of the remaining IT workers can nose-dive and pose challenges to managers who need to motivate them.

Outsourcing survivors may react with outrage, fear, "survivor's guilt" or even a heightened work ethic, bordering on manic behavior, say psychologists and workplace consultants.

Although some experts say that IT managers need to proactively address the morale of survivors of outsourcing to prevent loss of productivity, there's little consensus on whether tactics such as spot bonuses, employee recognition or increased training boost morale substantially.

But experts agree that IT managers need to focus on the human aspects of the problem and acknowledge the feelings of survivors.

"People react all over the map to outsourcing and offshoring, and IT managers need to realize that you can't manage the reaction," says Eileen Strider, president of Strider and Cline Inc., organizational effectiveness consultants in Kansas City, Mo. "The best you can do is be aware that people will have a range of reactions from, 'Screw you, I'm outta here,' to a denial reaction that says, 'I'm not important.' "

Amid such a range of strong human reactions, the worst thing an IT manager can do is to adopt the common attitude that "people don't matter; only the software matters," she says. Managers may react that way to protect their own feelings because they're probably hurt by the outsourcing too, but "at the very least," she says, "managers need to acknowledge the feelings of these workers."

Plenty of IT managers have good people skills, says Naomi Karten, but they're not good at managing large-scale change and recognizing it as a psychological or emotional process. Karten, who consults on workplace issues as president of Karten Associates in Randolph, Mass., says an offshoring or similar change provokes a "gut-level reaction, not a head experience."

"Many managers tend to look the other way and say, 'Let's get on with business.' And that can be the wrong thing to do," she says. "In fact, that approach can cause the transition to take longer."

Karten urges managers to get offshoring survivors to talk about how they feel, but to do so without using the word *feelings* to avoid calling attention to it. "Make it OK to vent," she says, and provide reminders of things that haven't changed.

Bear in mind that an outsourcing produces a new IT team, even if just one person was lost or added, Karten says. That means everyone should also spend time figuring out the new roles and reporting relationships.

Timothy Hoffman, a psychotherapist and founding director of Ambrosian Associates in Pastoral Counseling in Spencer, Mass., says the mission of managers overseeing outsourcing survivors is to "give them some semblance of stability."

A high-level executive should clearly communicate that the decision to outsource was beyond his control and important to the company's survival, Hoffman says. And explaining that the strongest workers were retained can help reduce self-doubt.

A dose of reality at such a meeting can be valuable too, Hoffman adds. "This is the business world and not Sunday school," he says. "The jobs of our fathers are gone, with their pensions and other guarantees."

While some companies might provide spot bonuses to survivors, in terms of motivation, "those things are Band-Aids," Hoffman says. "People would much rather have self-esteem and make decisions on their own. They prefer power and respect over money."

In extreme cases, survivor's guilt can produce low-level post-traumatic stress disorder that can be debilitating and lead to high absenteeism, Hoffman says. CIOs need to familiarize themselves with such reactions and employ counselors to help if necessary, he says.

Finally, says Hoffman, try to help survivors realize that those who got booted out can use the experience as a steppingstone to something better in their careers.

"If you are upfront and honest, people will understand what's going on and the business impact," adds Tom Pettibone, a partner at Transition Partners Co., a consulting firm in Reston, Va. "There may be a morale impact, but the world is changing, and the worst thing you can do is try to hide it." **50236**

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their biggest pain points.

These factors engender fear, exhaustion, bitterness and resentment, all of which blunt innovation and productivity. They can also cause long-term harm to workers' overall health, according to some experts.

In a 2004 *Computerworld* survey of 9,854 IT workers, 88% of the respondents said they experienced some kind of stress at work.

"We now know from research that in a work environment where there are a lot of pressure and demands and where people have very little control that substance abuse is two times higher, that heart problems and back pains are three times higher, that there's a greater rate of infections and mental health problems," notes Michael Koscec, president of Toronto-based Entec Corp., which specializes in measuring employee satisfaction and commitment at large companies.

Yet none of these problems is likely to be uncovered by traditional employee surveys, which tend to focus on salary, benefits and training issues. This is why experts advise managers to adopt a multifaceted approach to measuring employee morale and job satisfaction.

How Employees See It

Despite their unhappiness, IT workers say their greatest fear is losing their jobs as companies continue to cut costs by shifting software development, maintenance and support work to lower-cost domestic contractors and offshore service centers. They've already been made well aware by unemployed colleagues that finding a new job will be difficult, especially since there are more IT workers than jobs in many places. For example, the San Francisco area has suffered a 49% IT job loss between March 2001 and April 2004, according to a study this year by the Center for Urban Economic Development at the University of Illinois at Chicago.

In many cases, workers say the staffing cuts at their companies have been nothing short of brutal, leaving remaining IT professionals overworked and feeling burned out. On average, IT employees are logging 47 hours a week on the job, up from 46 hours a year ago, according to *Computerworld*'s 2004 Salary Survey [QuickLink 49872].

IT workers also are feeling quite cynical toward top management, which they regard as having its head stuck in the sand on key issues ranging from communication to outsourcing.

"Outsourcing is euphemistically called 'global sourcing,' " says an IT

Bummers

What has significantly affected your working conditions in the past year?

60%	Budget cuts
53%	Increased workload (due to staff cuts)
40%	Permanent staff layoffs
35%	Salary freeze
35%	Hiring freeze

Base: 7,607 IT workers; multiple responses allowed

SOURCE: *COMPUTERWORLD* SALARY SURVEY, 2004

worker at a large insurer. "Memos [about outsourcing] are self-congratulatory about how it will benefit employees, totally ignoring how many fewer domestic employees we have year to year."

He is particularly resentful about layoffs, which his employer officially refers to as "position migrations."

"High-minded phrases and motivational meetings do not conceal the venality and incredible lack of long-term planning that offshoring represents," he says.

At another company, IT staffers who remained on the job after many IT positions had been outsourced were switched from annual salaries to hourly wages. "Now, you have to get permission to work overtime, but you also have to get your job done. Often this means you have to falsify your time sheets because you don't have that permission," says an IT worker at the company. "It's the worst I've ever seen. It's just really a degrading environment. I used to work with some of the best and the brightest. Now it's all politics and CYA."

Fear of job loss drives other "weird behavior," notes a database expert with 28 years of experience who works at a large manufacturing company in the Midwest. "If you have a health issue, you don't take your sick days because you're afraid when you come back you won't have a job," she says. "If there's a death in the family or a severe illness, people are back to work in the next day or two rather than taking a week. People aren't taking vacation, either. Or if they do, they take a day or two at a time, so people don't really get a rest."

IT, R.I.P.

Underlying workers' complaints about layoffs and burnout is a kind of mourning for what IT used to be — a well-paid profession made up of hands-on problem solvers who were respected for their abilities.

Today, in contrast, "if you want to be someone who is a doer, you pretty much have to be a contract worker," says the database expert. "You can no longer be an employee [because] they're hiring employees to manage and supervise the process, not to do the process. [Management] views the doers as a commodity."

> "The way the job is now, we might as well ask people if they'd like fries with that project.
>
> **PROJECT MANAGER, FINANCIAL FIRM**

"We're now running more like a sweat shop. We aren't given the little professional-level luxuries that we used to have before," notes an IT worker. "If you order a piece of ergonomic equipment, they'll frown on you. We're not viewed as professionals anymore but as being disposable and replaceable, so you keep your nose to the grindstone."

"IT was a career, but now it's a job," says a project manager at a multibillion-dollar financial firm on the West Coast. "The way the job is now, we might as well ask people if they'd like fries with that project."

"IT in general is not the golden boy that it was in the 1990s," says a business intelligence manager at a Texas construction firm who has been in IT since 1984. "We did the 'big wow' projects in the mid to late '90s, and now it's kind of sweeping up. The projects are cool but don't have as much impact." As for mourning the old days in IT, "You get kind of used to being that knight in shining armor who comes in to save the day," he says. "Now we're kind of just humdrums, like we've been married too long."

Expert Advice

Kay Palmer, CIO at J.B. Hunt Transport Services Inc. in Lowell, Ark., says she can understand workers' general dismay over the drastic changes in IT's corporate status. "IT people already employed are seeing less IT investment and less euphoria around IT" than they did in the 1990s, she says. "IT is going from a highly valued, specially treated segment of the company to one viewed with skepticism. That's a tough life to follow."

One tactic Palmer has used to keep IT staffers from feeling marginalized is to publicize the top three IT projects each fiscal quarter. "When people see high-return projects, it helps them see how projects contribute to the overall [business] returns," she says. "It also recognizes the individual people who came up with the idea for the project,"

Your data loves salt.

BAD BOSS, Bad Morale

[BY JULIA KING]

Anyone who has ever quit a job will tell you: Good workers leave bad managers, not bad jobs or bad companies.

"Direct managers have a huge impact on the morale of an IT employee," says Steve Scott, CIO at Vision Service Plan, an eye care insurer in Rancho Cordova, Calif. At the same time, he acknowledges that by nature, many technology professionals simply aren't natural people managers.

"IT often has this situation where people who are managers are certainly enthused about technology, which makes it easier for them to focus on that rather than on [people] management and leadership skills," Scott says.

That's why Scott has all 23 of his IT managers participate in monthly meetings devoted to management and leadership issues. Also, Scott meets twice monthly with IT staffers as a means of giving them direct and regular access to the company's top IT executive.

"I meet with 15 to 20 employees, and I buy them lunch. I spend about five minutes giving them a high-level overview, and then we open it up to discussion and their questions," Scott says.

But how well does it all work to boost morale and keep employees happy? VSP ranked No. 3 on *Computerworld*'s 2004 Best Places to Work list. But the better measure comes from employees themselves. "There is great emphasis upon keeping employees informed and engaged in all aspects of their jobs and key actions that affect the company," says an IT employee at VSP. "I find that VSP is truly exceptional in this regard." 50240

Metering Morale

- Visit workers in their cubicles and ask them directly about job satisfaction.
- Conduct reality checks with workers outside of IT. Employees tend to express themselves more openly outside of their own departments.
- Monitor productivity and quality – two key morale indicators. When IT workers feel stressed and insecure, they can't focus or produce quality results.
- Take note of the relationship between each IT employee and his immediate manager.

JONATHAN WEINER

says Palmer, whose company ranked fourth on *Computerworld*'s 2004 list of Best Places to Work in IT.

Managers should create a similar kind of transparency around career development plans if they want to minimize IT employees' fears, says K.C. Tomsheck, director of IT at CDW Corp., another Best Place to Work.

To this end, every one of Vernon Hills, Ill.-based CDW's 153 IT workers has an individual development plan, "so they know precisely where they fit in," Tomsheck says. The written document includes technology-specific training plans as well as performance expectations for the year ahead.

At Miami-based Royal Caribbean Cruises Ltd., each of the company's 325 IT employees has a personal development plan that maps out "where they are now and which competencies they need to develop to get where they want to go," says Greg Martin, manager of integration. "We then use a combination of training, project assignments, mentoring and coaching sessions" for employees to reach their individual goals. "Everyone has a development plan, and we do quarterly and annual reviews of them," Martin notes. This allays employees' fears that they're heading in the wrong direction professionally, he says.

No Fear

Jean Delaney Nelson, vice president and CIO at Minnesota Life Insurance Co., says the best way to avoid fear of layoffs is to avoid layoffs, which she has managed to do by hiring very conservatively. "Unlike airlines, which hire in boom times, we don't do huge staff-ups. If we need to staff downward, we do so through attrition. We've never had a layoff in the IT organization — not because of a no-layoff policy, but due to very careful and prudent staffing to begin with," she says.

St. Paul-based Minnesota Life has also standardized on a single technology set across its lines of business, and this has helped the company avoid lay-

> "If you trust employees, they'll trust you back.
>
> **JEAN DELANEY NELSON, VICE PRESIDENT AND CIO, MINNESOTA LIFE INSURANCE**

One Happy Camper

Walter Sims, 38, is something of an anomaly among his IT peers these days.

"I have good morale, and I love my job," says Sims, who describes his title and role as "computer dude" at American Aircraft Products Inc., a 60-person manufacturer of aerospace structural components in Gardena, Calif.

"I'm the help desk, I install software, and I write programs that make people's jobs easier, and they appreciate that," says Sims. "I think the appreciation factor is important. A lot of time, the people don't understand what I do, but they're glad the e-mail works. Basically, I do everything having to do with IT."

Sims moved to the Los Angeles area from Seattle, where he spent more than a year unsuccessfully looking for an IT position after the meltdown of his former dot-com employer. "There were legions of people like myself," he says.

After two and a half years at American Aircraft, Sims says he "likes being a big fish in a small pond."

No longer does he work 12- to 14-hour days as he did at the dot-com. He makes less money than he did in his former job, but he says he's still paid well. He seems content with the trade-off.

"One of the things that dictates my morale is a healthy workplace and not being overwhelmed with unrealistic expectations," he says. "My boss is a practical person, and it's a positive work environment.

"All in all, it's a pretty simple formula for happiness on the job," he says.

– Julia King

offs. "All of our application developers support a standard set of tools. If we have a staff reduction in one area, we can easily move them to another," Delaney Nelson explains.

Last but not least, CIOs at companies with relatively high IT staff morale and satisfaction levels emphasize the critical importance of clear, frequent, honest and euphemism-free communication with IT employees.

"It's the unknown that causes anxiety and stress — not knowing if you're going to have a job next week or be outsourced. Or knowing there's a cost reduction, but not knowing how it's going to happen," says Delaney Nelson.

"If employees feel they're not in the know, it's a big factor that affects morale. Our managers update employees on a weekly basis. They also do a sort of temperature-taking of morale at the same time," she says. "If you trust employees, they'll trust you back."

Steve Matheys, CIO at Schneider National Inc. in Green Bay, Wis., instituted a formal IT communication plan last year after two employee surveys revealed that staffers in the 470-person IT group felt that they didn't understand the company's enterprise strategy and that they lacked face time with executives in IT and other parts of the company.

Now, IT staffers hear news and updates about IT projects, plans and staffing directly from Matheys. "They don't get news a day late and a dollar short and filtered down through two and three levels," he says. Among other things, Matheys holds monthly off-site meetings to disseminate business results to the IT staff. He also writes a monthly CIO column in an IT newsletter, and he walks around the office a lot.

"The whole idea of being visible and being present gives you the opportunity to sense what's going on" among IT employees, Matheys says. "I like to talk to the people who have been here for a while and also to the individuals who never complain. I don't find out how they're feeling by asking their manager but by asking them."

The bottom line: "If you have a comprehensive approach [to assessing morale] and a willingness to listen to what people are saying, you can actually drive morale," Matheys says. "You'll never sense — or boost — morale by sitting in your office." **50170**

> **I already know all of the stuff I have to do.** It's in the schedule from now until God knows when, but we probably need two more bodies to do it. I don't feel comfortable if I feel I'm rushing. There's this horrible feeling, this dread that I know I'm missing something and it's going to come back and bite me. **– SOFTWARE QUALITY ENGINEER**

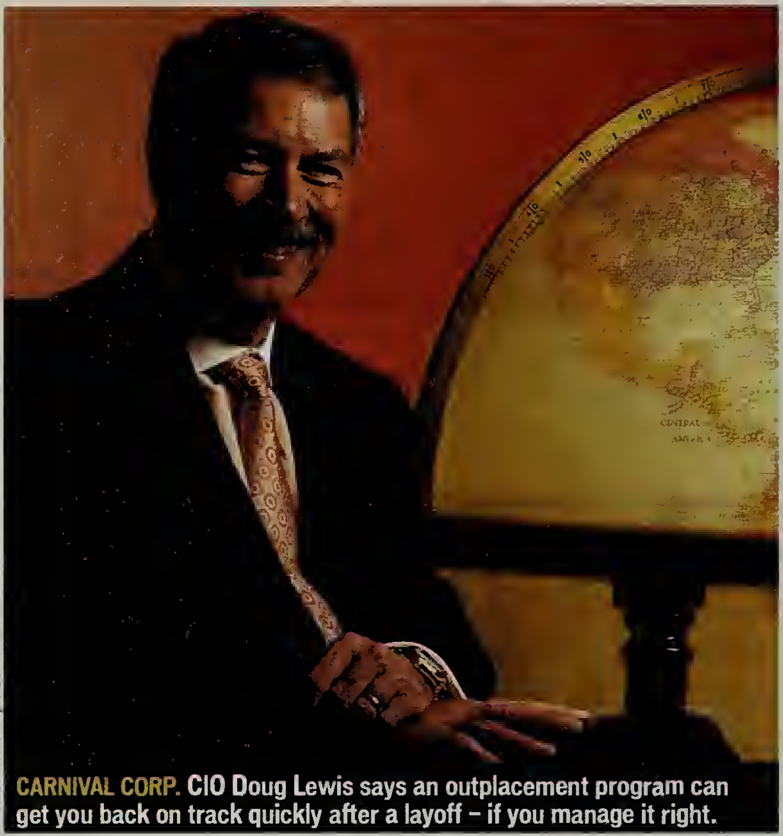
> **I would not recommend a career in IT to my children at this point.** Before, I would have said it was an OK career, but now, you're banging your head against the wall. **– APPLICATION DEVELOPMENT LEADER**

> **My problem is that I earned $12,000 more in 2001, before I was laid off, than I earn now.** Because of outsourcing offshore, my career is doomed and I am thinking about leaving the IT industry permanently. **– IT WORKER**

> **We have two types of offshore workers.** One is offshore, the other is hired from offshore but works locally. They both scare the pants off of all of us [U.S. IT workers] because they work for half of what we do, they're ethical, and they're good. They're living the American dream. **– DATABASE ADMINISTRATOR**

After THE Layoff

Outplacement services can boost your job search or suck the energy right out of you. It all depends on who takes charge. BY DOUG LEWIS


CARNIVAL CORP. CIO Doug Lewis says an outplacement program can get you back on track quickly after a layoff – if you manage it right.

ANDREW ITKOFF / SILVER IMAGE

Lost your IT job, but your company is supplying you with an outplacement service? Watch out! Used incorrectly, outplacement can be an impediment to finding your next position. Used properly, it can fast-track you into an ideal job situation. It's your future, and it's up to you to manage your outplacement service correctly. Here are five steps for managing the process to achieve your career goals.

1 **TAKE CONTROL OF THE RELATIONSHIP.** Ask your former company's HR manager what services you are entitled to and for how long. Ask if an extension is available if you are unable to find a job before your package expires. Many packages offer an optional six-month extension, but if you don't ask, you won't receive it. Make sure the outplacement counselor assigned to your case agrees with HR on the benefits.

Even the best outplacement companies tend to lump clients into groups. If you get pushed into a group of sales, marketing or advertising people, you'll be the outsider and you won't get the intended benefit of lead sharing, résumé polishing and interview coaching. Insist on a group that has other IT people, and try to get grouped with people who have better packages, not lesser ones.

Ask your counselor about his experience placing IT people. If he doesn't have a good IT track record, ask for someone who does. Let your counselor know you will be evaluating his performance, and ask for a different counselor if yours doesn't perform.

2 **SET YOUR OWN AGENDA.** The outplacement protocol immediately pushes you into a series of tests designed to help you decide what you're best fitted to do. Don't get railroaded into doing the tests before you're ready.

Talk with your spouse, friends and associates first. Be realistic about your abilities and your goals. If you want to get out of the IT field, know the risks, understand the training required and have a backout plan to return to IT if the new career doesn't work out. Ask your counselor to introduce you to people who have successfully gone down the path you want to follow.

IT MENTOR

Put your goals in writing and share them with your counselor. Then take the tests and look for a good match. If you want to become an independent consultant, for example, be sure your personality and skills fit the profile of a successful "Lone Ranger."

Lay out a plan to achieve your goals, then work with your counselor to match the outplacement services with your plan. If the services and your plan don't match, ask the counselor to modify the package. You may need to give up one service to get another, but most counselors like to work with innovative clients, so be bold.

3 **WORK YOUR PLAN.** Set milestones and metrics, and measure your progress. Be sure your outplacement counselor understands your plan and how he fits into it. Ask for advice, but be wary. He may never have been where you are.

The more senior the job, the more your appearance plays a role in the decision. IT people aren't known for being the sharpest dressers, so dress as you would for an interview and ask your counselor for honest feedback.

Periodically evaluate your plan. If you're missing every milestone, your plan, not you, is probably at fault. Enlist your counselor in evaluating your plan, and revise it.

4 **BE WARY OF NETWORKING GROUPS.** There are more such groups in IT than in any other field. These groups can make you feel good but waste your time. Attend a meeting if you're invited, but size it up quickly.

Determine the group's "level" by asking members what types of IT jobs they've had in the past and what they're looking for now. If the members are all data center rats and you're looking for a middle management or senior-level IT job, get out. You can't help them, and they can't help you.

The worst groups are pity parties populated by perpetual losers. If it's a loser group, don't go back.

The best groups are those with good track records of "graduates" who have quickly found jobs. Call some of those graduates. Look for the group's connections to hiring managers in the type of companies you want to work for.

Remember: You are emotionally vulnerable, and these groups can make you feel better about your situation because it's shared pain. But you don't need to share your pain; you need to get rid of it by finding a great job.

Respect your time. Spend it with people who can get you into an interview or are likely to hire you, not people who can't find a job.

Do

- Know the details of your outplacement program.
- Get placed in an appropriate counseling group.
- Demand an IT-savvy counselor.
- Set realistic goals.
- Measure your progress.
- Revise the plan as needed.
- Learn from rejection.

Don't

- Give up control.
- Get discouraged.
- Use networking groups as a crutch.
- Retreat into Web searches.
- Allow your health to suffer.

5 **PROTECT YOUR PHYSICAL AND MENTAL HEALTH.** Being between jobs is tough. It's easy to let despair creep into your life and eventually take over. You are going to get a lot of turndowns before you hear, "You're hired." Find a way to deal with it.

Your counselor should help you turn rejections into data. Work with him to analyze the reasons for the turndown and adjust your approach accordingly. If you hit an emotional low point, the outplacement company should provide professional help.

IT people aren't always the most outgoing, and it's tempting to retreat into a totally Web-based job search. Don't fall into this trap. People hire people, and the hiring process is far more subjective and empathy-based than many managers would like to admit.

If outplacement services are available, it's up to you to manage them wisely. Make the outplacement company serve your plan. **49490**

Lewis is CIO at Carnival Corp. in Miami. Contact him at dlewis@carnival.com.

Career Watch

INCREASING CONFIDENCE *in the job market is awakening the wanderlust among U.S. workers. According to a recent survey of 406 executives, 62% aren't satisfied with their jobs. Among those whose aren't satisfied, 97% plan to change jobs within the next six months.*

The survey was conducted by ExecuNet Inc., an executive job search service in Norwalk, Conn. Computerworld*'s Thomas Hoffman talked with ExecuNet President* **Mark Anderson** *about the job climate for IT executives.*

Q&A

What's the current market like for CIOs and other senior IT executives? We're increasingly bullish about the IT area for a number of reasons. Recruiters have been telling us for the last nine or 10 months that the employment market for senior executives is increasing by about 16%. We see that for technology executives as well. Since Labor Day, the market has gotten stronger, and companies are extending more executive searches. That's an indication that the market is going to get better and not decline.

What's fueling this? It's really the continued expansion of the economy. In the earlier stages, companies were being cautious, but along about July or August, they started hiring in a stronger fashion.

Are you seeing an increase in demand for short-term or temporary IT executive positions? We don't track anything in particular in that area, but we have seen a lot more full-time consulting positions. That may also have to do with the [economic] expansion as companies are trying to fill those positions first. From the second quarter to the third quarter, demand for IT management positions was up a solid 5%, and CIO hires were up 3%. **50244**

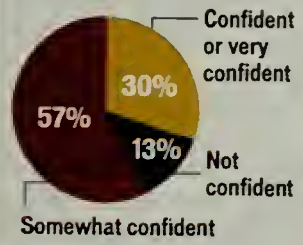
Good Boss, Bad Boss

A recent survey of 1,400 randomly chosen individuals by CareerBuilder.com found that of those with:

GOOD RELATIONSHIPS WITH THEIR BOSSES	BAD RELATIONSHIPS WITH THEIR BOSSES
34% had received raises of 6% or more in 2004.	19% had received raises of 6% or more in 2004.
16% thought they had been overlooked for promotions.	25% thought they had been overlooked for promotions.
26% saw little opportunity for advancement.	63% saw little opportunity for advancement.

Spirits Up

How confident are you that the job market will improve over the next six months?



BASE: 181 EXECUTIVES
SOURCE: EXECUNET INC.

Charity Pays

All things being equal, 72% of employed Americans would choose to work for a company that supports charitable causes, according to a new survey sponsored by Deloitte & Touche LLP. The response rate climbs to 87% for employed students over the age of 18.

- **92% think companies should support community charities.**
- **87% think companies should offer volunteer opportunities to employees.**
- **57% think workplace volunteer opportunities improve morale.**

BASE: 1,328 EMPLOYED AND 841 UNEMPLOYED U.S. ADULTS **SOURCE:** HARRIS INTERACTIVE INC., ROCHESTER, N.Y., OCTOBER 2004

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Inspire the Next

Hiring Nerds

Author lays out practical strategies for staffing up IT

A new book will take a lot of the angst out of staffing up for those IT shops lucky enough to be doing so. Hiring the Best Knowledge Workers, Techies & Nerds: The Secrets & Science of Hiring Technical People *(Dorset House, 2004), by* **Johanna Rothman**, *is a highly practical tome about hiring IT folks. Rothman talked with Kathleen Melymuka about strategies and pitfalls in IT hiring.*

What's the biggest mistake IT hiring managers make when they prepare to hire someone? I see mistakes in these areas: 1) Hiring based on a tools checklist — some number of years of Java or WinRunner — as opposed to hiring someone who can adapt his/her knowledge to the products at hand. This is the biggest one I see. 2) Hiring for the future instead of the present. I see this one almost as much. Hiring someone who the manager *thinks* will have the skills to grow into a new or different role in the future. 3) Not considering how a new hire will fit into — or not! — the team. People are not just a collection of technical skills. If they can't get along with the rest of the team, it can be close to impossible to use their technical skills to move the work forward.

Isn't hiring for aptitude the same as hiring for the future? No. I see people saying, "I need someone to be a tech contributor now, but I want him to be a tech lead in six months," so they hire someone with management experience and hope he or she can do the work. I see that a lot in hiring developers. But they're managers, not architects. They're capable of doing the management, but they can't actually do the architectural work. If you need an architect and a manager and you can only have one, decide which you need now and hire that person. Figure out how to deal with the other part later. You can't get both.

How do I read between the lines in a résumé? What do I look for? Look for action verbs to describe what a candidate accomplished. Look for some quantifiable benefit of what the candidate accomplished. See if you can see an ever-increasing range of responsibilities. Make sure that if you see similar jobs over and over again that you ask about that to determine whether the candidate has had the same year of experience several times.

That would indicate a lack of growth? Yes. It's OK to be comfortable on the job, but if you do exactly the same work with no change in skills over several years, you're not increasing your value, and your résumé will show that.

Hiring technical managers gets a separate chapter. What makes that particularly challenging, and what's the key to getting it right? You can't just judge a potential manager by how well he or she performs the functional tasks of the job. But how do we, as a field, normally promote or hire managers? By taking the best technical person and promoting/hiring that person. Wrongo! A manager needs to be able to understand the issues of the roles he or she is managing — but not necessarily to perform that work.

A common problem I see is to ask a manager to manage several functions at too low a level. It's not uncommon to see a manager of test and operations. Anytime you see an "and" in a title, you can tell the company is looking for a superman/woman, and most people cannot make that kind of work succeed. A director level or VP level could manage a title with an "and" in it, because at that level, the manager needs to spend much of his or her time on strategic issues and developing action plans to deal with the issues. But at a first-level management role, the manager deals with primarily tactical issues. If you're managing test and operations, which one do you pay attention to first? You're doomed.

THE TEAM APPROACH

Author Johanna Rothman suggests using a team approach to evaluate candidates through a series of interviews. Here's why:

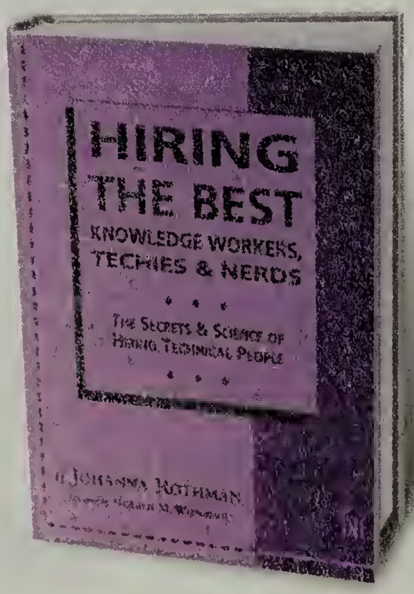
- One person can't learn enough about a candidate to understand everything about how he might work in the organization. Other perspectives are necessary.
- The entire interviewing team will gain a deeper insight about the candidate. Questions and answers are richer because each interviewer can focus his time and his questions.
- The entire interviewing team will learn a little about how it might be to work with the new person, easing the integration of that person into the team.
- The hiring manager can't possibly know all of the questions to ask and how to evaluate all the answers. Depending on the rest of the team for help in the interviewing process relieves the manager from having to be omniscient.

What's the most crucial thing to learn about a candidate during an interview, and how do you learn it? Whether the candidate has actually performed work claimed on his or her résumé. The way you learn this is with a combination of behavior description questions — "Tell me about a time when . . ." — and an audition, to watch the candidate in action and see if the candidate can actually work the way he or she claims.

You include a chapter on sourcing candidates. What are some of the underused sources of good technical people? Professional meetings and conferences. At professional meetings, people who are interested in the field, who are probably willing to learn new things, have taken the time to attend a meeting. Even if those people aren't right for you, they might know someone else.

Conferences are a great way of seeing other people's interests, and maybe a little on how they learn.

What are the red flags that should almost always veto a technical candidate? Lying about previous work. I can't imagine a circumstance in which a hiring manager would want someone who has lied about previous work. And the same year of experience multiple times. A manager may not need the person who can learn anything in no time flat, but anyone who's not willing to take on something new every so often is not a good candidate for a fast-moving field such as IT. **50466**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The Secrets & Science of Hiring Technical People
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EXEC TRACK

Zierhoffer to Head Northrop IT Group

Northrop Grumman Corp. has named Carol Zierhoffer vice president and CIO of its IT sector. Zierhoffer joined the Los Angeles-based engineering company in 1988 and most recently served as vice president and CIO for its electronic systems sector.

Ex-CIO Appointed To Lead Neogent

Neogent Inc. in Austin has appointed Dennis Faggioni as CEO. Faggioni has more than 15 years of experience, including serving as CIO at Scottsdale Insurance Co., Salt River Pima-Maricopa Indian Community, and Insight Enterprises Inc. Faggioni previously worked in various management positions at IBM. Neogent provides content, compliance and secure identity software.

Jacob Takes Post At Energy Solutions

Al Jacob, former CIO of Koch Pipelines Co., has joined Energy Solutions International in Houston as executive vice president of global services. Jacob will focus on providing automation for clients of the company, which makes oil and gas pipeline management software. Before moving to Koch as CIO in 1997, Jacob spent 13 years at Electronic Data Systems Corp.

Taylor Moves Up At Delta Dental

Marland Taylor has been named vice president of systems development at Delta Dental of California and affiliates in 16 states plus the District of Columbia. Taylor will oversee systems development and analysis and software maintenance. A 10-year veteran of the company, Taylor has held the positions of director of information systems and manager of commercial operations at San Francisco-based California Delta.

BART PERKINS

Outsourcing: First Ask Why

MOST COMPANIES initially consider outsourcing in order to reduce costs. While saving money is a valid reason for making that choice, it's usually not the only factor. Many organizations find that their outsourcing decisions are shaped by a variety of motivations, but identifying and prioritizing them early can help you make better decisions later. Here are some possible motives for outsourcing.

To acquire specialized skills. Many projects require technical skills that the company doesn't employ, either because it doesn't need them on a full-time basis or because it has been unable to hire people with the desired skills.

To meet uneven staffing demands. Some companies facing large development projects expect that when those projects are completed, the need for development staff will decrease significantly. They don't want to add new employees, only to lay them off in a year or two. Migration to a new technology base also creates uneven staffing demands, resulting in an increased demand for new skills and a decreased demand for old.

BART PERKINS is managing partner at Leverage Partners Inc. in Louisville, Ky., which helps CIOs manage their IT suppliers. He was previously CIO at Tricon Global Restaurants Inc. and Dole Food Co. Contact him at **BartPerkins@LeveragePartners.com.**

To mitigate risk. Organizations embarking on high-risk projects generally look for outsourcing partners with deep domain expertise. While the buyer should never outsource total responsibility for the project, hiring additional staffers with relevant experience reduces risk.

To change fixed costs to variable. Employees are generally considered a fixed cost. Outsourcing provides the flexibility to increase or decrease staff size easily and quickly as business conditions dictate.

To improve service. Many companies outsource to increase the level or the consistency of their service. For example, it's not uncommon to find that every major location within a large corporation has its own help desk, each with its own service levels. Outsourcing all of the help desks to a single provider will standardize service and guarantee appropriate service levels.

To impose process controls. Outsourcers make money by standardizing processes. Organizations with weak development practices may use the discipline of a Capability Maturity Model Level 5 outsourcer to force their own people to adopt consistent processes. Similarly, some organizations use outsourcing to impose financial discipline across the company.

To focus management time. Outsourcing noncritical items enables management to focus on core competencies and critical projects.

To maintain objectivity. Technical staffers often become loyal to the technology base they support and may not make the best decision if they're lacking an impartial tiebreaker.

For example, a recent merger resulted in equal numbers of Notes and Exchange users. The CIO used an outside technical expert to get the warring parties to make the best architectural decision based on the needs of the business.

Your company should identify and prioritize its motivations, and there needs to be a clear consensus among the management team. While this sounds straightforward, it's not necessarily easy to achieve.

Recently, the chief financial officer of a Fortune 500 client stated that cost cutting was the only important motivation and that all other considerations were "noise-level."

The CIO agreed that cost was important but felt that access to specialized technical skills and the ability to meet demand spikes were equally important. These differences could have turned their outsourcing decisions into a full-scale battle.

Moreover, valuable time and resources would have been wasted in selecting an outsourcer whose performance would have eventually proved unacceptable to one of the executives.

In contrast, clearly defined motivations help you optimize crucial areas of your outsourcing:

Partner selection. Different outsourcers bring different advantages and disadvantages. Well-defined motivations make it much easier to match their strengths to your needs and help eliminate unacceptable candidates.

Contract terms. Motivations are the foundation for successful contract negotiations. They drive your negotiation strategy and help you determine which points to concede and which to insist upon.

Cost/service-level trade-offs. Motivations help you determine the right balance between how much you pay and the level of service you receive. Most outsourcers can provide significantly improved service — for significantly increased fees.

Metrics development and management. Your motivations should drive the metrics against which you and your outsourcer manage your project, since what you measure is ultimately what you get [QuickLink 44278].

Clearly define and prioritize the motivations that drive your outsourcing decisions before you select your outsourcer and begin to negotiate. You'll find that motivations drive many aspects of the outsourcing process, and understanding them will help your outsourcing efforts succeed. **50272**

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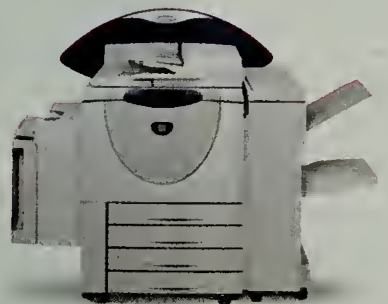

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Advertising Supplement

IT Careers with the National Laboratories

Among the intellectual set, working at one of the country's national laboratories is similar to "going to the big show" for a baseball player. It's the top rung of a technical career, offering opportunity to the best and brightest to be involved in basic research. From the latest in energy research to nanotechnology development, the laboratories are using information technology to create what once was considered science fiction.

In all, the national laboratories hire better than 3,000 people each year in primarily technical slots. While a goodly portion of these jobs requires doctoral studies in highly specific areas, there also are career entry opportunities. And the jobs are spread among the projects and programs in research that are conducted in the labs, as well as in the computer information divisions that keep the labs humming. The most important aspect of applying for a national laboratory position is the need for a security clearance. Whether a director in the top tiers of management or an analyst evaluating systems, you'll need to be able to gain a high ranking Q clearance.

Among the ways of securing the clearance is to take part in internships prior to graduation. However, if you're already a seasoned IT professional, it's crucial to get that clearance to provide a hiring edge.

In general, the laboratories are managed by large corporations such as Battelle or Lockheed Martin, universities such as University of California or University of Chicago, for the Department of Energy. Pay is highly competitive, retention is intentionally high; however, corporate bonus structures follow a federal model rather than corporate models.

Here's an overview of the labs and their missions.

Argonne National Laboratory, Chicago, IL. Argonne is operated by the University of Chicago. The staff conducts research in physical, life, and environmental sciences as well as enhances and advances energy resources and technology. More recently, this Chicago based lab is working to manage and solve environmental problems and contribute technologies to counter terrorism threats.

Brookhaven National Laboratory, Brookhaven, NY. Brookhaven focuses on high energy and nuclear physics. Its technical staff has openings for high-energy physicists who also have expertise in C++, an example of the highly specific talents being sought.

Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID. This facility has more than 6,000 scientists, engineers and employees. The lab undertakes research in environmental, energy, basic science and national defense. Bechtel operates the lab.

Lawrence Livermore National Laboratory, Livermore, CA. Livermore is operated by the University of California. Its mission is to support national security, ensuring that the country's nuclear weapons are safe, secure and reliable. The staff includes an Information Operations and Analysis Division and is among the labs most involved with cyber security issues. Among the system demands being implemented is a secure wireless network for employees.

Los Alamos National Laboratory, Los Alamos, NM. Los Alamos makes headlines for more than security breaches – this is home to space exploration, nuclear research and was founded as the birthplace of the atom bomb. The lab is operated by the University of California. The lab offers career-starting positions in computer science, physics, computer engineering and software, with an emphasis on artificial intelligence, security and large-scale computational sciences.

National Energy Technology Laboratory, Pittsburgh, Tulsa and Morgantown, WV. NETL is the only national lab that is operated and managed by the Department of Energy. Its role is to conduct research that advances fossil energy exploration, supply and end use technology. In addition, it now includes environmental research and technologies.

National Renewable Energy Lab, Golden, CO. Operated by Midwest Research Institute and Battelle, NREL staff members are involved in the study of renewable energy and energy efficiency research. While geologists and PhDs in statistical analysis dominate the staff, there also is a strong information technology organization with openings in senior analysis slots.

Oak Ridge National Laboratory, Oak Ridge, TN. Operated by the University of Tennessee, Knoxville, Oak Ridge is known as the "ultimate scientific community." Opportunities focus on ultrascale computing, large-scale simulations and technical support for the organization's energy-based research

Pacific Northwest National Laboratory, Richland WA (with operations in San Antonio, TX and other sites). PNNL is a center of excellence for the national labs in computational sciences. Cyber security is a major focus for the staff, as is basic scientific research and insertion of new technologies into full-scale operation.

Sandia National Laboratory, Albuquerque, NM. Operated by Lockheed Martin, Sandia has an extensive reach in technologies and research, from fundamental research to projects that support national security, nuclear weapons, nonproliferation and assessment, military technology and energy. Among its newer assignments, the lab is heavily involved with infrastructure assurance and homeland security. Over the past five years, Sandia has hired 400 engineers and technicians annually.

For more information about IT Careers advertising, please call: 800.762.2977

Produced by Carole R. Hedden

Software Applications Engineer - Design, develop, implement and modify computer software applications for use in testing and validating integration of software and hardware systems employed in FDA regulated medical devices, and conduct research to validate systems and report results, utilizing Labview, advanced computer simulation techniques, computational physics, advanced ENM, and superconductivity. Requires B.S. or equivalent degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field, and three years experience developing software applications utilized to test and validate operational software and hardware in medical devices. (Note: Employer will accept M.S. level degree in Computer Science, Math, Physics, Engineering, Chemistry (math based) or closely related field in lieu of three years of experience.) Send resume to: Michelle Bakken, Human Resources, Stereotaxis, Inc., 4041 Forest Park Ave., St. Louis, MO 63108.

Database Administrator: MS SQL Servers/Sybase D/bases: Install, maintain MSSQL Server(s) & Sybase d/base w/data migration & integrity for complex, high end OLTP d/base(s) w/corollary duties. Exp w/Pathfinder applic & ESPRANT tool. Req: Bach of Engg/Sci: Comp w/relevant certifications & 3 yrs exp. Resume only (no calls/e-mails) to: Attn: CW/SF; National Medical Health Card, 26 Harbor Park Dr., Port Washington, NY 11050.

Software Engineer (Applications) (National Placement, two (2) positions). Develop, create and modify computer applications software for clients; analyze user needs and provide solutions; design, architect customized software modules and applications with the aim of optimizing operational efficiency. Both positions require a Bachelor's Degree in Engineering or Computer Science and four years of related experience. Position 1 requires a Java/Oracle Programmer with at least one (1) year experience in digital certificates/SL security programming. Skills must include: JAXB, HTTP/HTTPS SSL, log4j, Websphere, WASD, LDAP, RDBMS. Position 2 requires a Mainframe Programmer with a minimum of two (2) years working with State Government Welfare & Unemployment Insurance Systems that includes experience in 1) COBOL, 2) CICS 3) JCL 4) REXX 5) DB2 6) IMS. $70,500/yr, 40 hrs/wk, 9a - 6p. Send resumes, listing Job Order # WEB468727 to Site Manager, Beaver County CareerLink, 2103 Ninth Avenue, Beaver Falls, PA 15010-3957.

Computers - Seeking qualified candidates for senior and mid-level IT professional positions including: Software Developers, Software Engineers, Web Administrators, IT Analysts & Technical Consultants. Qualified candidates must possess MS/BS or equiv. and/or rel. work exp. Duties include: Work with 3 of the following: C, C++, Java, XML, JSP, Visual Basic, SQL, PL/SQL, Perl, and ASP. Fwd. resume & references to: ICSA, Inc. 477 Congress Street, Suite 1002, Portland, ME 04101.

Engineer

Sr. Software Engineer

VoIP Systems

Design, develop and implement complex network monitoring and billing applications for global Internet Telephony voice and data networks to include routing and DNIS rollup tools, pricing, and the fine-tuning and enhancement of the same and automation and integration of business processes. BS Engineering with 5 years experience as Software Engineer and/or Programmer/Analyst with prior experience to include development of billing systems and software applications for VoIP-Telecom industry. Send resume, referencing Job Code: CW11-8, to: Teleglobe (formerly ITXC Corp.), 750 College Road East, Princeton, NJ 08540. EOE

Senior Consultant to perform Oracle, Siebel, Ariba & other ERP implems. re. funcnl. & tech d/zn, conversions, customizn. of Oracle Mfrng. & Finance Applns. D/zn & dev. w/ Oracle (8.0.5; 8.1.6; & 8i), Oracle dev. tools & SQL Loader, TOAD, & DBA Studio. ID & doc. biz & f/nl. req's to ensure d/zn comply w/ biz. f/ns & QTC processes. Resp. for strategy, opns., data conversion, interfaces & mapping, form, rpts. d/zn, & training. Provide primary client contact thru utilizing owned & alliance partner resources. Pursue & secure new partnerships & enhance contract scope. Adhere to budgets & schedules. BS in Mech. or Ind. Engineering + 11 mo. exp. in job duties. Apply: A-1, 4278 Covington Hwy., Decatur, GA 30035 w/ proof of perm. w/k authzn.

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Embedded S/W Eng. Design & develop s/w protocol stacks for 1394, 802.3 home network systems. Design & implement device drivers using C/C++ on Linux/Unix/Windows. Perform system verification & evaluation & FPGA/Board debugging. Bach's degree in Comp Sci, Physics or Elec Engrg reqd + 1 yr s/w engrg exp. Snd resume to Panasonic Semiconductor, 550 South Winchester Blvd, Ste 300, San Jose, CA 95128, Attn: HR, DA

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Seeking qualified applicants for the following positions in Memphis, TN: Senior Business Application Analyst. Act as liaison between technical developers and users/customers. Requirements: Bachelor's degree or equivalent* in computer science, math, statistics, business, MIS or related field plus 5 years of experience in analyzing business systems and developing technical automated solutions. Experience with airline scheduling systems development also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Matt Coplas, FedEx Corporate Services, 2955 Republican, Memphis, TN 38118. EOE M/F/D/V.

Senior Prog/Analysts to lead teams to analyze, design, appls with OOAD methodologies using J2EE, JDK, JDBC, EJB, Java, HTML, JavaScript, XML, Weblogic, Websphere, Oracle, MS SQL Server on Windows envir.; evaluate user requests for new programs or complex modifications to existing programs; test/debug programs; provide training to team members. Require: BS or foreign equiv. in CS/Engg (any branch) & 3 yrs exp. in IT. Competitive salary. Travel involved. F/T. Resume to: HR, Bahwan Cybertek Technologies, Inc., 209 West Central Street, Ste 312, Natick, MA 01760.

PROCOM is seeking Systems Analysts to implement SAP software systems written in ABAP language related to finance modules, public sector modules, etc. Experienced applicants please respond with resume to: Procom Services, 801 Campbell Rd, E., Suite 110, Richardson, TX 75081 Attn: R. Kviring.

Project Engineer needed to gather IT mkt intelligence; write estimates, proposals, etc. & present technical architecture to clients & tech support for sales teams; research & negotiate tech'l partnerships; provide project & systm engg support for projects using J2EE, MS.NET, Voice, Unix, C++, Oracle, Informix & mainframes. Approx 40% Int'l & domestic travel reqd. Resume to: Hireme, Global Consultants, 25 Airport Rd, Morristown, NJ 07960.

Software Engineer: For proprietary trading firm, responsible for source code control & maintaining a homegrown configuration mgmt system that runs on Solaris & Windows platforms; develop tools & procedures to facilitate proper usage of configuration mgmt system & educating developers on the usage of those techniques; upgrade 3rd party tools as needed to support software development dept. Reqs: Bachelors or equiv. in Comp Sci, Engineering or related field. 3 yrs exp in job offered or 3 yrs software development or configuration mgmt exp. Exp must incl. using Perl and C++ on Unix & Windows NT platforms. Proficiency in Windows, Shell Scripting, awk, sed, Rogue Wave Libraries, MKS & gmake. 40 hrs/wk. Send res. to S-1, P.O. Box 17182, Phila., PA 19105.

PROG. ANALYST - PEOPLESOFT

Analyze, dsgn, dvlp, modify, test, troubleshoot, implmnt, integrate & support high volume, complex client web & appln-based server for enterprise-wide financial mgmt appln sys. software in a multi-hardware/software environment. B.S. degree in Comp. Sci. or Engnrg + 2 yrs exp. in job offered or in software engnrg w/PeopleSoft reqd. Exp. must include integration of Vantage-One w/PeopleSoft financial applns; Session Initialization Protocol dsgn; AIX servers & DB2 dbase. High mobility preferred. 40 hrs/wk, OT as reqd, 8 am - 5 pm, $66,730/yr. Submit resume to: Manager, Butler county CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699. Please refer to Job Order No. WEB 469570.

Director Database Admin: Design, create & develop database objects; administer applic. after deployment; configure servers & clients; administer d/b system; develop proposals includ. estimates for costs, time, & resources; prep. statistical reports; complete cost/benefit analyses; prep. project plans; perform project mngmnt. tasks. Oracle exp., Performance & Tuning skills, Unix & SQL Server database exp., Oracle 9i, Quest Toad, Perl, Statspack including explain plans & tkprof. On-Call Availability. Requires: MS Comp. Sci. & 1 yr. exp. Comp Salary. Send resume to: ELS, HR ATT: Luciana Brown, 1052 Mamaroneck Ave., Mamaroneck, NY 10543.

Product Development Manager (Miami Beach, FL) Direct & coord R&D of new IT apps for presurgical info mgt co. Consult w/ users & internal business devel teams to assess IT needs & sys requirements. Design & analyze new projs. Oversee app, develop & qual control. Need bach in comp sci, IT or related field + substantial exp. Send resume/letter in dupl to MMF Systems, Inc, 4701 Meridian Ave, Nichol Bldg, Level E, Miami Beach, FL 33140.

Programmer Analyst (Multiple Positions) Install, configure, administer, tune, and troubleshoot Sybase Replication Server 11.5.1. & SQL servers. Upgrade Sybase SQL Servers & perform problem determination. Tune Sybase SQL Servers by making the servers use Async I/O. Req: Bachelor in Comp. Sci., Comp. Eng., or Electrical Eng. 40hrs/wk. Job/Interview Site: De Moines, IA. Send resume to Emprise Consulting LLC @ 200 E. Sandpointe Ave, Suite 725, Santa Ana, CA-92707.

Application Database Administrator (DBA) in Bioinformatics, applying expertise in Oracle versions 7 through 9 & MySQL to Bioinformatics applics. Work w/multi-site project teams to dsgn & create schemas to represent biological data, applying genetics/genomics knowl. Dvlp PL/SQL code to satisfy business rule reqmts for projects. Leverage expertise w/distributed d/bases to provide enterprise-wide, integrated data envrmt. Implmt new Oracle features to optimize performance & functionality. Utilize applic domain expertise during release processes, data curation & transformation tasks throughout applic life cycles. Implmt monitoring & reporting tasks to identify & predict problems. Provide daily support to Bioinformatics d/base customers. Use & reinforce project mgmt processes from dvlpmt to test to production. Be available for scheduled off-shift activities to minimize production downtime. Liaison w/systm DBA group to negotiate requests to meet Bioinformatics needs while conforming to stds & procedures. Req.: B.S. or foreign equiv in Comp Sci, Engg or a related field. 4 yrs exp as an Oracle DBA. Following exp, which may have been obtained concurrently: 3 yrs exp w/distributed d/base architecture, incl instance configuration & query execution; 2 yrs exp in Bioinformatics; 2 yrs exp w/ genetics & genomics terminology & meaning; & 2 yrs exp in SQL, PL/SQL, UNIX & MySQL. Resume to: E. Franklin, GlaxoSmithKline, 5 Moore Dr, Research Triangle Park, NC 27709

Embedded S/W Engineer. Design, Develop & release real time embedded s/w. Write s/w application & validation/verification test specs. Bach's deg in Comp Engrg or Elect Engrg + 5 yrs prog exp in specialty field. Snd resume to PASA, 776 Highway 74 South, Peachtree City, GA 30269, Attn: R Henkel, NB

Programmer Analyst needed w/Bachelors degree or Foreign Equivalent in Engg. or Comp. Scie. or math & 2 yrs exp in using C,C++, Java, Oracle, Developer 2000, IIS, Tomcat & TCP/IP. Mail resumes to: R.J. Ventures, Inc. 15 East Germantown Pike, Norristown, PA 19401.

Seeking qualified applicants for the following positions in Orlando, FL: Senior Programmer Analyst. Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with C, Sybase and Unix Shell Scripting also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Carl Wilhelm, FedEx Corporate Services, 1900 Summit Tower Blvd., Suite 1400, Orlando, FL 32810. EOE M/F/D/V.

Quality Assurance Engineer to develop testing methods & procedures to ensure product & process quality for company-wide processing & on multiple tasks/projects. Will generate comprehensive test plans, test scenarios & test cases based on business requirements; perform system acceptance testing & user acceptance testing to ensure that info systems & services meet internal quality standards & end-user requirements; participate in formal reviews of application designs, business and functional requirements; write & reproduce accurate software problem reports; develop automated test scripts utilizing commercial tools & will be responsible for integration, regression & functional testing of software releases. Will identify & resolve technical issues & provide technical supervision. Requires Bachelor's or equiv in Comp Sci, Engineering, Math or Physics plus 3 yrs experience in Job Offered OR 3 yrs exper developing & testing client/server and web applications. Candidate must also possess demonstrated expertise in the following: developing automated regression test plans & cases using WinRunner, Test Director and AstraQuick Test; writing database SQL queries, data verification in Informix/Oracle on both UNIX & Windows O/S; and in performing data driven testing & verifying dynamic objects using TSL. Salary $55,600/yr; Mon-Fri, 9AM–5PM. Applicants must submit 2 copies of resume to Ginny Burton #4269, Dept. for Employment Services, 275 East Main St., 2-WA, Frankfort, KY 40621. Equal Opportunity Employer. Only persons with authorization to work permanently in the U.S. need to apply.

IT Managers needed. Seeking candidates w/ BS or equiv & relevant work exp. Part of rel work exp must include 2 yrs working w/ VB & ASP & 1 year working w/ SQL Server. Exp. can be simultaneous. Duties include: Manage IT department, develop IT strategies to support business objectives, formulate IT roadmap to integrate & align business processes. Mail resume & refs. to: Human Resources, a2z, Inc., 10320 Little Patuxent Parkway, Suite 201, Columbia, MD 21044-3343.

Programmer Analysts (multiple positions) sought by NJ-based computer s/w consultancy firm for job location in Portland, ME. Must have Bach or foreign equiv in Comp Sci, Engg or equiv & 1 yr relevant exp. Respond to: HR Dept., Software Galaxy Systems, LLC, 480 Congress Street, Suite 205, Portland, ME 04101.

Programmer Analysts

Analyze, architect, develop, integrate, and test multi-tier Enterprise Applications, System Integration and Implementation using VC++, Java, XML, Web Logic, TCP/IP programming, COM+, SOAP. WebServices-.NET, Databases such as SQLServer, and Oracle. Req. Bachelor's degree in Comp. Science or Engg. and 2 yrs of exp. Send resume to HR. eTransX Inc. 5214 Maryland Way, Suite 100, Brentwood, TN 37027 or E-mail: info@etransx.com.

SYSTEMS SOFTWARE ENGINEER to provide on-site consultancy to analyze, design, develop, implement and modify systems software in web architecture using Java, JSP, Servlets, XML, HTTP, WebMethods and RDBMS, Oracle, DB2 and WebSphere in Unix and Windows environment. VBScript, XML, HTTP, WebMethods and SQL Server in Unix and Windows environment. Require: Master in Computer Science/ Software Systems and four years experience in the job offered or any experience providing skills in the described job duties. 40% travel to client sites within the United States required. Salary: $70,000 per year, 40-hours/week, 8:30 am to 5:30 pm. Apply with resume to: Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244.

S/W Application Programmers to identify, solve problems/incidents in SAP or Oracle suite of appls; analyze, design, maintain appls using either SAP, ABAP, VB, NET, DW or Oracle database, Oracle applss (Financial, Manufacturing, Distribution, HR, Project), Oracle Appl Server PL/SQL, Reports/ Forms on Windows/UNIX OS; perform req analysis, conduct functional testing/debugging; document, maintain & update use cases. Require: BS or foreign equiv. in CS/Engg.(any branch) or related field and 2 years exp in IT. Travel involved. F/T position. Comp. salary. Resume to: HR, Quest America, Inc., 211 East Ontario Street, Suite 1800, Chicago, IL 60611.

Software Engineer to analyze, design, develop and test client server enterprise applications using J2EE, Java, C++, Servlets, JSP, XML, HTML, CORBA, Oracle, Websphere on Windows and UNIX operating systems; generate code from client requirements using Visio 2000 and UML; evaluate and enhance performance of enterprise application using JProbe Suite and automate testing process using WinRunner. Require BS or foreign equivalent in CS/Computer Engg with 3 yrs of exp in IT. Competitive salary, F/T. Resumes to CyberObject, 3050 Business Park Drive, Suite A-1, Norcross, GA 30071.

IT Systems Manager (Miami Beach, FL) Plan, direct & oversee all IT activities for presurgical info mgt co, incl prod dev, quality control & security. Need bach in comp studies, comp sci, IT or related field (or professionally evaluated equiv exp) + knowledge of DB, OS & networkg. Send resume/letter in dupl to MMF Systems, Inc, 4701 Meridian Ave, Nichol Bldg, Level E, Miami Beach, FL 33140.

Software Engg. needed. Burlington, MA based company hs positions avail. for qualified candidates possessing MS or equiv. w/ rel. work exp. Duties include: Design, develop, implement & customize software applications for various business clients using 3 of the following: Sun Solaris, Load Runner/Win Runner, Weblogic, Unix, C/C++, VB, VC++, Java, .NET, EJB, J2EE, ASP.Net/ADO.Net, DOORS, Rational Rose and Visio, Websphere, Javaservlets, Perl, Corba, HTML/XSL/XML/DHTML, COM/DCOM, PL/SQL & Oracle/ Sybase databases. Mail resume to Iconsoft Inc., 101 Cambridge St., Suite 305, Burlington, MA 01803.

Project Director in Mesa, AZ to direct & id. manageable onsite/ offshore elearning & applications development projects. Must have MS deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 3 yrs. proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, 2 yrs. exper. in software proj. eng. for comp. or web-based training & proj. mgmt. exper. Bach. deg., or foreign equiv., in Eng., Comp. Sc. or rel. field & 5 yrs. progressive proj. eng. exper., incl. proj. design, implementation, planning, reqts. analysis & execution, plus 2 yrs. exper. software proj. eng. for comp. or web-based training & 1 yr. proj. mgmt. exper. can subst. for MS deg. & required exper. Send resume to Hilary Gosselin, HR Manager, Lionbridge Technologies, Inc., 492 Old Connecticut Path, Framingham, MA 01701.

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(Multiple Openings)

Software Engineer/Programmer Analyst, Omaha, NE

Must have bachelors degree or equivalent and experience (performing analysis, design, development, implementation, maintenance) in some of the following skills: C/C++, Java, J2EE, Cold Fusion, Frame Works (Struts, Spring Frame work, Hibernate), Microsoft Technologies (Visual Basic, .Net, ASP), Mainframe (REXX, CLIST, ISPF, TSO, Skills, COBOL, DB2, JCL), Windows 2000, NT, Sun Solaris and Linux. Must be able to travel or relocate nationwide. Attractive compensation package. Mail your resume to: info@solutionsdelivery.com or Human Re-sources Director, Solutions De-livery, Inc., 4780 South 131 St, Suite 14, Omaha, NE 68137.

Oracle Architect: Collect campaign mang't info, validate, send data to Promotion History database. Maintain eCommerce marketing & IFS. Reqs Campaign Management & CDS w/in financial co; Req. Logical & Physical database design using Erwin data modeler. Req. exp loading data from a Teradata database into an Oracle 8i DB. Fax resume to Matt @ 704-334-9694.

Programmer Analysts (2 Positions) w/ Bachelors or Foreign Equivalent in Computer Science or Engg or Math + 1 yr exp in using .NET Applications, VC++, VB, C#, VB.NET, SOAP, MSMQ, WIN32 APIs, ActiveX, ASP, Oracle, SQL Server, Sybase, Rational Rose & Clear Quest Interface Messaging. Mail res to: Compu-Info, 410 Kingstown Rd., #2A, West Kingston, RI 02892.

Software Engineer. Develop, modify, analyze programs & apps utilizing s/ware devel life cycle. Bachelor in CS, Eng'g, or similar, plus 6 mos utilizing SDLC, incl Java, IBM Websphere, Eclipse, & HTML. Contact A. Hill, Job #2416.07, Irwin Mortgage Corporation, 10500 Kincaid Dr, Fishers, IN 46038.

Paradigm Infotech is looking for programmer/system analysts, DBA, s/w engineers. Candidate must have BS/MS with experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML, ERP are plus. Traveling required for some jobs. Apply jobs@paradigminfotech.com. EOE. No call.

Infogen is seeking IT professionals to design applications for clients using Oracle9i, Weblogic / WebSphere, C++, Visual C++, VB, COM, STL, MTS, MSMQ, ASP, Java, HTML, XML, MTS, MSMQ, ADO, UML. Min BS/MS, travel is required. Send resume to infojobs@infogeninc.com. EOE.

Programmer/Analyst, Washington, DC. Assist in design, dev. & implementation of client/server distributed software architecture; Portal, CRM, ERP, B2B, & B2C software using Java, JavaScript, XML/XSL, HTML, Oracle PL/SQL & C++ languages; JDK, J2EE, XSLT, SOAP, Portals technologies; software such as IBM WebSphere Application Developer, Microsoft Windows NT/2000/XP, Microsoft SQL Server, Oracle Database. Reqd B.S.C.S & 2yrs exp. Send resume S. Arseniev, V.P., Ref. # 99A3, 3307 M St., N.W., Ste 200, Washington, DC 20007.

Software Applications Engineer - Assigned as IT Consultant with project management responsibility, to design, develop and modify JSP, Servlets and software for web and general computer applications utilizing J2EE, STRUTS, Oracle/SQL and Java SDK. Multiple Openings Available. Requires Bachelors or equivalent-level degree in Computer Science, Computer Engineering, Mathematics or closely related field, and three years experience as Java/J2EE Developer in Web Applications. Send resume to Rick Heinlein, Ferguson Consulting, Inc., 12444 Powerscourt Dr., Ste. 235, St. Louis, MO 63131

K&M Softech is looking for programmer/system system, software/project engineers or IT professionals. Both entry & experienced levels needed. Some positions require travel. Skills in C/++, VB, Java, Oracle, SAP, SQL are plus. Please send resumes to Recruit@kmsoftech.com. EOE. No calls.

Staffing Tree, LLC has openings for System Analyst, IT consultants/recruiters. BS or equivalent required. Exp. in Oracle, Java, C/C++, SQL & IT placement/marketing is strong plus. Travel required for some positions. We sponsor green card. Please contact debdas@staffing-tree.com. EOE.

UNIX Database Administrator: install, maintain, repair optimize, data storage/integrity/retrieval for Unix scripting & corollaries. Plan, secure data transfer to non-Unix platforms as needed. Bach in Electronics Engg, Comp Sci or related field, w/Oracle, SCO, Novell, & relevant Certifications, & 3 yrs exp req'd. Resume only (no e-mail/calls): Attn: CW UDA Sandata Technologies Inc., 26 Harbor Park Dr., Port Washington, NY 11050.

Database Administrator wanted by consulting co. in IL to manage co's Novell LAN, assess & repair comp problems. Recommend/ implmt new s/ware & h/ware. Utilize various comp prgms & act as liaison btwn facility & technology service vendors. Must have Bach degree or equiv & 1 yr exp in job offd or any Prgmr Analyst position. Employer will accept combo of edu &/or equiv exp in Prgmr/Analyst in lieu of Bach deg. Respond to: MY Management, Mr. Mohammed N. Yaqoob, 8060 Lawndale, Skokie, IL 60076. No calls.

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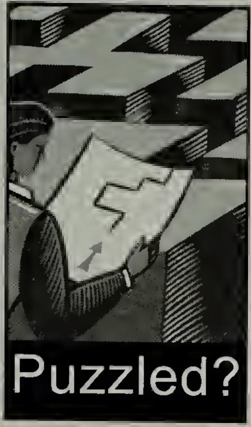

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Personnel Manager (Technical)- Recruit, interview and select IT professionals to fill vacant consultant positions, administer technical interviews of applicants, negotiate employment terms, including salary, and benefits, ensure consultants achieve project goals, and arrange continuing education of consultants when necessary. Master's degree in Human Resources Management or Business Administration. In lieu of a Master's degree, we will accept a Bachelor's degree or foreign equivalent, with at least 5 years of progressive experience in IT Project Management or Resourcing. Must have 3 years of experience as a Personnel Manager (Technical) or in the related occupations of IT Project Management or Resourcing. Extensive travel, frequent relocation. $75,000/yr 40 hrs/wk. EEO/AAP/M/F/V/H Submit resumes to Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water St, PO Box 759, Kittanning, PA 16201-0759. Job Order No WEB 469115

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Relational Database Management Systems/related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/CA, Eng, Chem, Math, Physics or scientific/business field. Must have 1 yr exp using Oracle or SQL Server. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP /M/F/V/H. Submit resumes to Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001-5699 Job Order No. WEB470440.

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Programmer Analyst - Legacy Systems (AS/400) - Multiple Openings

Systems analysis, design, development, testing, debugging, quality assurance, integration, implementation, post implementation support & conversion of complex on-line client-server based accounting, inventory, manufacturing, finance & other business application systems using Relational Database Management Systems (RDBMS), Fourth Generation Languages (4GLs) and other software utilities in a multi-hardware/multi-software environment including IBM mainframes, mid-range and PC systems. B.S. in Computer Science/Math/Engineering/Science/Business - Commerce (or equivalent) and 1 yr. experience in job offered or as a Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 3 of B; or 2 of B and 1 of C; or 1 of A and 2 of B. A) Includes software packages BPCS, MACPAC, MAPICS; B) includes languages RPG/400, CL, COBOL/400, SQL/400, Ouery/400, C; and C) includes communication/CASE Tools APPC, APPN, SYNON, AS/SET. High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: Site Manager, PA CareerLink - Westmoreland County, 300 East Hillis Street, Youngwood, PA 15697-1808. Refer to Job Order # WEB 469177.

SENIOR DATABASE DESIGN ANALYST to analyze, design, develop, implement and support large databases including data migration ETL processes in both UNIX and IBM environments; Tune Oracle and Teradata-databases for optimum performance and security using ANSI SQL, PL/SQL, UNIX Shell, PERL, Multiload, Tpump, Fastload, BTEQ, Teradata-Manager Performance Monitor (PMON), SQL Loader, Oracle Web Server and HTML. Require: B.S. degree in Computer Science, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Database Consultant. Extensive travel on assignment to various client sites within the U.S.Is required. Competitive salary offered. Apply by resume to: RaviKandimalla, Everest Computers Inc., 875 Old Roswell Road, Ste E-400, Roswell, GA30076; Attn: Job AP.

Chief Computer Programming Consultant at various U.S. sites based on client location. Programming + support applications. Technical lead/ programming project mgt. Consult w/ client mgt re: program & tech needs, identify & resolve problems. Technologies incl. Compaq, HP NonStop (Tandem). Involves travel. Requires BS Comp. Sci., EE or related + 2 yrs relevant exp. Resume to S.T.J. Inc. H.R., PMB 111-B, 700 Sleater-Kinney Rd. SE, Lacey WA 98503.

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions for Internet Applications. Bachelor's degree or foreign equiv. in CS/ CA or Eng. Must have 1 yr exp. using ASP, HTML and JAVA. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Armstrong County CareerLink, ATTN: CL Program Supervisor, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759 WEB470371.

SAP ABAP Developer - Wausau, Wisconsin. Develop and maintain the ABAP programming environment in the SAP R/3, mySAP environment as part of the Information Technology department. Analyze, develop, monitor and implement ABAP program functionality for all SAP modules throughout the company's facilities to achieve company goals. Responsible for being involved in all aspects of the SAP functional implementation of the business, specifically for developing programs from functional requirements and for determining functional requirements from business requirements. Develop, maintain, streamline and test new and current ABAP programs in the system. Work with the SAP Core Team to address issues, provide programmatic solutions and recommend more efficient methods of system operations. Assist in system upgrades, and assist in the conversion from legacy systems and integration to legacy systems. Required is a Bachelor of Science degree in Computer Science, or Computer or Management Information Systems and four (4) years of experience as a SAP ABAP Developer, Developer, Software Developer, or Programmer Analyst. As part of the required experience, the applicant must have had experience in ABAP coding in SAP on a release of 4.x or better; experience with RFC's ALE, IDOC's in SAP 4.x, EDI, SAP Script, User Exits, and BAPI; experience in ABAP programming for the MM/PM/FI/CO/SD modules of SAP; and experience with Word, Excel, Access, Java, and HTML. Must have proof of legal authority to work in the U.S. Qualified applicants please email resume and cover letter to mondeikk@wausauhomes.com and clearly identify position applying for in subject line of email.

Software Engineer (Waltham, MA): Analyze, design and develop technical architecture and advanced web-based software systems for broadband services and infrastructure; provide technical and project leadership in all phases of software development cycle; research, design and develop applications and components using J2EE and Microsoft-.Net technologies; implement and deploy solutions using Java, EJB (Enterprise Java Bean), XML (Extensible Markup Language), Servlets, C++, C, SQL and LDAP (Lightweight Directory Access Protocol) on iPlanet, WebLogic, WebSphere platforms, Oracle database and portal frameworks (Epicentric). Requires Masters degree in Computer and Information Systems and either 1 year exp. in the job offered or 1 year exp. in software engineering on web-based systems using J2EE, EJB, XML, LDAP, WebLogic, Oracle and portal frameworks. Salary $96,845/yr, Mon-Fri, 8am-5pm, 40 hrs/wk. To apply submit two (2) copies of resume to: Case # 200300356, Division of Career Services, Labor Certification Unit, 19 Staniford St, 1st Fl., Boston, MA 02114.

Programmer Analyst - Administer, maintain, design, develop, create, and modify computer systems and applications software, specialized utility programs, networks, and applications; analyze user needs and develop networks using Systems and related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad. study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/ CA or Eng. Must have 1 yr exp using UNIX, NIS, AWK, PERL, E10K, and TUXEDO. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP /M/F/V/H. Submit resumes to Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370-1324 WEB470358.

SYSTEMS ENGINEER

Implement client projects incorporating proprietary enterprise application integration products and ancillary tools. Gather customer requirements, research and analyze requirements, perform systems-level design and project planning. Test and debug applications and systems, including source code and general software processes, and provide client training. May provide technical leadership. Travel required. Job based in Oak Brook, IL.

Bachelor's degree in Computer Science, Electrical Engineering, or closely related field, or the foreign equivalent, and two years of experience in systems development, testing, and implementation, including J2EE, Weblogic, LDAP, and Front End Development.

SENIOR SOFTWARE CONSULTANT

Design development solutions with employer's proprietary software based on project specifications and install in customer environments; develop business logic and interfaces using BPEL, Java (J2EE), Monk and other languages in customer environments using proprietary software and implement solutions; identify and resolve coding problems; mentor internal, client and partner resource(s) in development efforts; accurately estimate development work effort for self and potentially others; work with customers to develop OS level scripts in support of proprietary software; and direct and advise clients on technology architecture. Travel required.

Bachelor's degree in Computer Science, Electronics Engineering, or closely related field, or the foreign equivalent and two years experience designing and developing enterprise software applications including Java/J2EE, XML, EAI, MQ Series, Web Services, and Oracle or other RDBMS.

Please send resume, indicating position of interest, to: **Human Resources, SeeBeyond Tech. Corp., 181 West Huntington Drive, Monrovia, CA 91016** or contact us at **hire_me@seebeyond.com**. EOE.

SEEBEYOND

Software Engineers-Multiple Positions: wanted by an IT consulting firm in Keene, NH to work at various client locations throughout USA. Respond to HRD, Infowave Systems, 39 Central Square, Suite #201A, Keene, NH - 03431. For all these positions we need Two years plus progressive experience in software analysis, design and development with a Bachelors Degree.

SAP ERP Engineers: Experience in implementing web enabled SAP ERP modules such as SD, MM, BW etc, CRM, RDBMS, performance tuning, and internet technologies.

Oracle Data Warehouse Engineers: Experience in Enterprise Data Warehouse applications using Oracle, Forms, Reports, ETL Informatica, BI Business Objects, Database tuning, shell scripts, Oracle Applications on UNIX and Windows platforms. Other desired skills include Pro*C, Internet tools, scripting and testing tools.

Oracle Software Engineers: Experience in 3 tier Enterprise Applications using Oracle, PL/SOL, Pro*C, Forms, Reports, Oracle Applications, Discoverer, Designer, Erwin, Shell scripts, middleware such as 9iAS on UNIX.

Microsoft and ERP Engineers: Experience in Enterprise and Web Applications using Erwin, ERP Great Plains/GEAC, Dexterity, ASP, VB, SQL Server or Oracle, Tuning and testing on .Net Technologies, Windows, UNIX and IIS.

Java Engineers: Experience in Enterprise and Web applications using Java, J2EE, JSP, EJB, XML suite, web/app servers such as Web Logic or Web Sphere, Rational Rose, UML, Used Cases, BPMS etc. on UNIX and windows platform. Must have strong skills in Database programming and tuning on Oracle or DB2. Others skills incl. scripting and testing. .

Oracle Database Administrators: Experience in Oracle 8i/9i database administration, data modeling and database design for a data warehouse environment on UNIX. Also experience in performance tuning of VLDB's, database security, data warehouse and OLAP development. Skills should include PL/SQL, SOL, Shell Scripts, awk, Cron, OEM, Server Manager, Unicenter, UNIX and Windows NT/2000. Other skills desired DBMS like SQL server, MS Access, Sybase etc, programming skills, ETL processes etc.

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Enterprise Resource Planning/ related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad. study & 3 yrs exp as computer professional in lieu of Bachelor's degree. Degree must be in CS/CA, Eng., Chem., Math, Physics, or scientific/business field. Must have 1 yr exp using SAP, BAAN, PeopleSoft, Oracle Apps/Finance/ Manufctrg/HR. Extensive travel, frequent relocation. $66,550/ year, 40 hrs/wk EEO/AAP/ M/F/V/H Submit resumes to McKeesport CareerLink, ATTN: ES Manager, 345 Fifth Avenue, McKeesport, PA 15132-2600 Job Order No. WEB470431.

Programmer Analyst - Develop, create, modify computer syst/ apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Oracle and related software. Bachelor's degree or foreign equiv. Foreign equiv.may be a 3 yr. degree. Degree must be in CS/CA, Eng, or scientific/business field. Must have 1 yr. of exp in the job offered or related field. Will accept a Master's degree in CS/IS in lieu of exp. Must have 6 mo. exp using Oracle and SQL. Extensive travel, frequent relocation. $66,550/ yr 40 hrs/wk. EEO/AAP/M/F/V /H. Submit resumes to Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401 WEB470381.

Headquartered in Huntsville, Alabama, Intergraph Process, Power & Marine employs more than 700 people worldwide and conducts business in 50+ countries. Focused on the needs of the power, process, and marine industries, Intergraph Process, Power and Marine offers products and solutions that span plant design and visualization, plant operations, engineering information management, materials management, and project management.

Customer Application Consultant will coordinate pre-sales and/or post-sales support of company products and systems; provide technical support in sales presentations and product demonstrations and provide solutions to customer application problems. Requires BS and 10 years of experience in process power plant design including 5 years of experience using PDS 3D software.

Senior Software Analyst (4) will plan and conduct complex programming assignments in the development of company ship building products. Requires BS in CS, Math, Engineering or related discipline and 3 years experience in programming and software analysis to include 2 years with COM or OO programming and 1 year with VB and C++ or Visual C++ in a Windows environment. One of the positions based in Alabama, requires 1 year experience with VHL. Two positions are located at our Hampton, VA offices.

Send resume to S. Wolchik at Intergraph Process, Power and Marine, 300 Intergraph Way, Madison, AL 35758, or fax to 256-730-3428. Please reference ad number CF1104.

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M/F/D/V

Applications Development Specialist - Working in a team environment and under supervision, plans, conducts, and coordinates programming application activities. Performs system design, development and installation of systems applications. Corrects systems errors and prepares operating instructions. Documents computer programs for systems of moderate complexity. Evaluate customer capabilities and needs. Develops conversion plans and procedures. Translates specifications for software components into designs and implements the designs. Utilizes DIAMOND Software application skills and PL/SQL programming skills for software development and coding. Diagnoses software issues (bugs or defects) and provides resolutions. Requires a Bachelor's Degree in Computer Applications or Computer Science plus 5 years of experience in the job offered or 5 years of experience in software application development or programming. 3 of the 5 years of experience must include Diamond software application development, PL/SQL, Oracle development, and healthcare software systems. Salary: $63,000, 40 hours/week, M-F, 8:00am to 5:00pm, job location: Jacksonville, FL. Send Resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869. RE: Job Order: FL2573330.

Software Engineers sought by ITMGlobal Inc. for locs in NJ & nationwide. Reqs. Masters w/1yr exp. Bach w/at least 5 yrs progressive exp will be accepted in lieu of Masters. Research, analyze, dsgn, dvlp, test & implmt mainframe & data warehouse based applics using Cobol, DB2, Perl Scripting, Shell Scripting, SQL Server, Teradata, Informatica, DataStage, BO, Cognos & XML/XSL on Unix & Win platforms. Must have legal auth to work in US. Relocation may be required. Excellent pay & benefits. Send resume w/proof of work status to 4 Sequoia Dr, Dayton, NJ 08810.

Programmer Analyst (Micro/Web) -
Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analysis, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr. experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server; and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK); High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,533 - $78,000 per year. Qualified applicants should contact or send resume to: Fayette County CareerLink, ATTN: CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401. Refer to Job Order # WEB 469841.

SOFTWARE CONSULTANT
Perform project analysis and design, define project architecture, implement assigned deliverables and test deliverables, develop and maintain technical documentation, identify and communicate project risks to senior project staff. Develop integration between network management applications and various enterprise third part applications. Knowledge of the following technologies: J2EE, BEA Weblogic Server, BEA Weblogic Portal, Oracle 8i, AnT, HttpUnit, HtmlUnit, Red Hat Linux, Struts, JavaScript, and other J2EE related technologies.. A bachelor's degree in C.S./C.I.S./M.I.S. or related field required. 40 hours per week 8:00 a.m. to 5:00 p.m., $39,852.00/year. Must have proof of legal authority to work in the United States. Send your resume to Madhavi Bhadbhade, Nebraska Department of Labor, P.O. Box 94600, Lincoln, NE 68509. Refer to Job Order TREL6-5YJJE-86699 . This advertisement is paid for by the employer

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Software Engineer (Metairie, LA) Under supervision of the project manager, research, design, development and customization of client server software using Oracle RDBMS, SQL and various GUIs (Graphical User Interface) in Windows/Unix operating systems. Req. B.S. in Comp. Sc., MIS, Math, Bus. or Eng. and 2 yr exp. in the job offered or 2 yr. exp. as a programmer/analyst, systems analyst or computer consultant. All candidates must possess at least 2 yr. exp in using Peoplesoft applications and also hands on exp.in using Oracle RDBMS, SQL and various GUIs in Windows/Unix operating systems. 40 hrs/wk. 9-5, $62,000/yr. Submit resume to the Office of Workforce Development, P.O. Box 94094, Baton Rouge, LA 70804-9094. Job Order # 129064.

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A position is available for a Systems Analyst in Columbus, Georgia with a computerized solutions company. The Systems Analyst will be primarily responsible for providing expertise in systems integration and reengineering projects. Specific responsibilities include using systems engineering and applications engineering to manage, design, develop, improve, and integrate large database systems for re-engineered mainframe systems and software application. Candidates for this position should possess a Bachelor's degree in a computer field, or any combination of education and experience; 2 years' experience as a Database Administrator in the IBM Main Frame MVS or MVS OS/390 environment including ADABAS, DB2, and VSAM databases; and coding and interpreting Assembler/COBOL language which contain ADABAS direct commands. Apply by mail to: Danny Merom, Modern Software Technologies, Inc., 1150 Lake Hearn Drive, Suite 130, Atlanta, Georgia 30342.

Programmer Analyst - Develop, create, modify computer syst/apps software & specialized utility programs. Analyze, design databases within an application area, analyze user needs, develop software solutions using Graphical User Interface (GUI). Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp. using Oracle and 2 of the following: Visual C++, C, C++, Crystal Reports, Visual Basic. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H. Submit resumes to Mon Valley Regional CareerLink, Donora Industrial Park, 570 Galiffa Drive, Donora, PA 15033-1385 Job Order No. WEB470391.

INFORMATION TECHNOLOGY
Information Technology Auditor. Req. Bachelor's degree (or higher) in Comp. Sci. or Infc. Systems and 2 years' exp. in the job offered or 2 years' exp. performing auditing & security reviews on ERP systems to assess application & module configurations. All stated exp. must include each of the following: firewalls & intrusion detection systems; control systems for ATM, frame-relay, and FDDI networks; Unix, Windows, IBM midrange & mainframe operating systems; & BCP/DRB assessments. Must have experience with Sarbanes 404 compliance systems & ISO 17799. Must be available to travel domestically up to 35% of working time. Perform auditing and security reviews on Enterprise Resource Planning (ERP) such as SAP and PeopleSoft systems, and to assess application and module configurations. F/T. Apply with resume to: Delphi Corporation, Attn. A.V., Maildrop 480-410-122, 5825 Delphi Drive, Troy, MI 48098.

Programmer Analyst-Develop, create, modify computer syst/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using SAP & related software. Bachelor's degree in computer science/applications, engineering, mathematics, physics or other scientific or technical field. In lieu of a Bachelor's degree, we will accept an Associate's degree or foreign equivalent and three years of experience in the field. Must have at least one year of experience as a computer professional and one year of experience using SAP. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H Submit resumes to Fayette County CareerLink, ATTN CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401 Job Order No WEB 469104.

Programmer Analyst - Develop, create, modify computer syst/apps software & specialized utility programs. Analyze, design databases within an application area. Analyze user needs, develop software solutions using Siebel CRM & related software. Bachelor's degree or foreign equiv. Will accept 3 yrs undergrad study & 3 yrs exp as a computer professional in lieu of Bachelor's degree. Degree must be in CS/CA or Eng. Must have 1 yr exp. using Siebel CRM. Extensive travel, frequent relocation. $66,550/yr 40 hrs/wk. EEO/AAP/M/F/V/H Submit resumes to CareerLink Westmoreland, ATTN: CL Program Supervisor, 300 East Hillis Street, Youngwood, PA 15697-1808 Job Order No. WEB470365.

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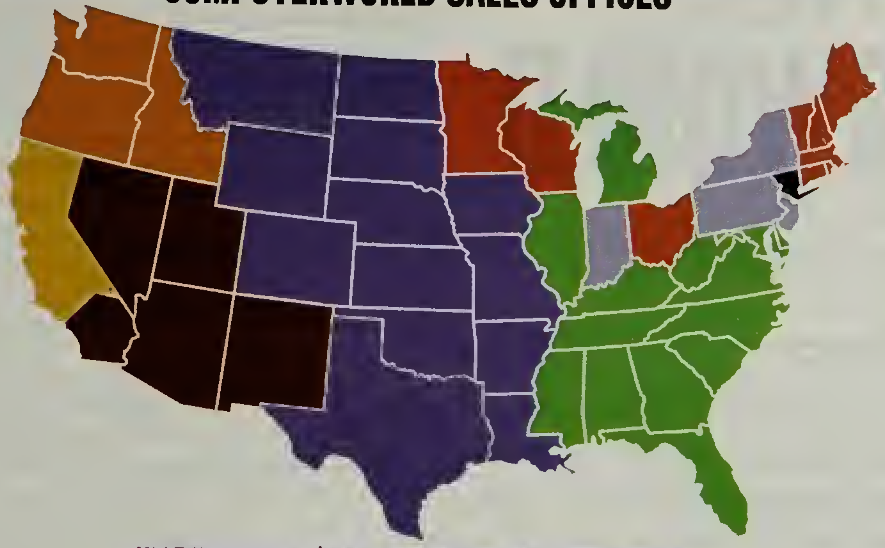

VICE PRESIDENT/NATIONAL ASSOCIATE PUBLISHER

Matthew J. Sweeney
(508) 271-7100
Fax: (508) 270-3882

SALES BUSINESS MANAGER

Laureen Austermann
(508) 820-8522
Fax: (508) 270-3882

NORTHWESTERN STATES

ACCOUNT DIRECTOR: Jim Barrett (415) 978-3306; **ACCOUNT EXECUTIVE:** SaraJane Robinson-Retondo (415) 978-3304, 501 Second Street, Suite 114, San Francisco, CA 94107, Fax: (415) 543-8010

BAY AREA

ACCOUNT DIRECTOR: Jim Barrett (415) 978-3306, **ACCOUNT EXECUTIVES:** Emmie Hung (415) 978-3308, SaraJane Robinson-Retondo (415) 978-3304, 501 Second Street, Suite 114, San Francisco, CA 94107, Fax: (415) 543-8010

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CENTRAL STATES

ACCOUNT DIRECTOR: Bill Hanck (949) 442-4006; **ACCOUNT EXECUTIVE:** Jean Dellarobba (949) 442-4053, 19200 Von Karman Avenue, Suite 360, Irvine, CA 92612, Fax: (949) 476-8724

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SOUTHEASTERN STATES/ ILLINOIS/ MICHIGAN

ACCOUNT DIRECTOR: Lisa Ladle-Wallace (904) 284-4972, 5242 River Park Villas Dr., St. Augustine, FL 32092, Fax: (800) 779-8622; **ACCOUNT EXECUTIVE:** Deborah Crimmings (508) 271-7110, One Speen Street, Framingham, MA 01701, (508) 879-0700, Fax: (508) 270-3882

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How to Contact COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Don Tennant,
editor in chief
(508) 620-7714

Mitch Betts,
executive editor
(301) 262-8243

Julia King,
executive editor, events
(610) 532-7599

DEPARTMENT EDITORS

Craig Stedman, News editor .... (508) 820-8120
Mike Bucken, assistant News editor .... (508) 820-8562
Tommy Peterson, Technology editor........ (508) 620-7729
Kathleen Melymuka, Management editor........ (508) 820-8118

REPORTERS

Matt Hamblen, networking; mobile/wireless; network/systems management .... (508) 820-8567
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OPINIONS

Jamie Eckle, Opinions editor........ (617) 596-1873
Frank Hayes, senior news columnist .... (503) 252-0100

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Robert L. Mitchell, senior editor........ (508) 820-8177
Mark Hall, editor at large........ (503) 391-1158
Gary H. Anthes, national correspondent........ (703) 536-9233
Julia King, national correspondent .... (610) 532-7599

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Ken Mingis, online news editor........ (508) 820-8545
Marian Prokop, online editor at large........ (508) 620-7717
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RESEARCH

Mari Keefe, research manager
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COPY DESK

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ADMINISTRATIVE SUPPORT

Linda Gorgone, office manager........ (508) 820-8176

CONTRIBUTING COLUMNISTS

Pimm Fox, Michael Gartenberg, Dan Gillmor, Paul Glen, Barbara Gomolski, Thornton A. May, David Moschella, Bart Perkins, Paul A. Strassmann

CONTRIBUTING WRITERS

Mary Brandel, Russell Kay, Sami Lais, Robert L. Scheier, Steve Ulfelder

GENERAL INFORMATION

TELEPHONE/FAX

Main phone number. . . . (508) 879-0700
All editors unless otherwise noted below
Main fax number . . . . . . (508) 875-8931
24-hour news tip line. . . (508) 620-7718

E-MAIL

Our Web address is **www.computerworld.com.**

Staff members' e-mail follows this form: **firstname_lastname@computerworld.com.**

For IDG News Service correspondents: **firstname_lastname@idg.com.**

LETTERS TO THE EDITOR

Letters to the editor are welcome and should be sent to: **letters@computerworld.com.** Include your address and telephone number.

MAIL ADDRESS

PO Box 9171, 1 Speen Street,
Framingham, Mass. 01701

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ERP System

paper manufacturer that claimed modifications it made to SAP AG's R/3 software were custom development, which is tax-exempt in Wisconsin. Packaged software is taxable.

The Neenah, Wis.-based company's 1995 installation of R/3 cost $23 million, of which $5 million was for a license for the ERP software. The rest of the money was spent on modifications and implementation costs, according to court papers released Oct. 26 by Judge Steven Ebert of Circuit Court Branch 4 in Dane County, Wis.

After Menasha paid a sales tax of $342,614 on the implementation to the state's Department of Revenue, the company tried to recover the money by petitioning the state Tax Appeals Commission. Menasha is now seeking a total of $500,000, including interest.

The appeals commission agreed with Menasha that the software was custom-written, but Ebert overturned that decision, ruling that R/3 "was existing and prewritten" when sold.

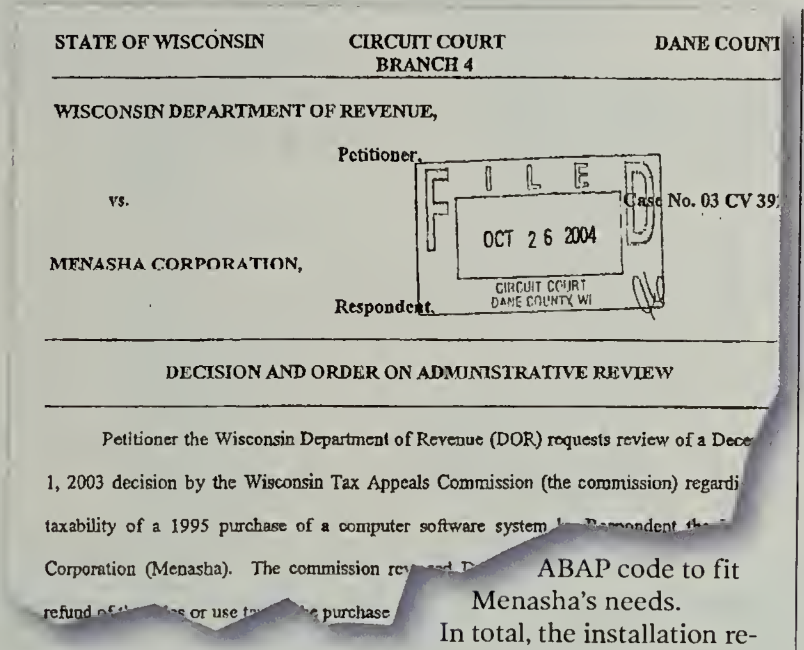
Agony and Ecstasy

The DOR "is pleased with the decision," said spokeswoman Eva Robelia, who explained that a Menasha victory would have set a precedent allowing other companies that have paid similar taxes over the past four years to file appeals. The state potentially would have had to refund about $300 million in taxes and interest.

Officials at Menasha, which has up to 90 days to appeal, are unhappy, their lawyers said. "Wisconsin has taken the position that all software is off-the-shelf unless it's written from scratch, which no one does anymore," said Leonard Sosnowski, an attorney at law firm Foley & Lardner LLP, which represents Menasha. The larger issue, he said, is that not only is the modified software itself taxable, but potentially so are the services required to fix or reprogram it during the implementation. Sosnowski also said the case could be used as a reference in other states, where some IT executives are keeping an eye on its progress.

"Clearly, the judge is not understanding the real world of IT," said Bubba Tyler, CIO at Quaker Chemical Corp. in Conshohocken, Pa., which runs PeopleSoft Inc. applications. "There's no such thing as an 'off the shelf' ERP system, and therefore everyone requires 'development' for it to work with a given firm's business," he said. "If I have to write custom reports or create custom output for my customers or construct interfaces for the tool to work with other tools I use, all of this is unique and should not be taxed."

Andrew Nelson, another lawyer at Foley & Lardner, added that if the case is upheld, some companies might move IT operations to states with more favorable tax laws.



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WISCONSIN DEPARTMENT OF REVENUE,

Petitioner,

vs. Case No. 03 CV 39

MENASHA CORPORATION,

Respondent.

FILED
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CIRCUIT COURT
DANE COUNTY WI

DECISION AND ORDER ON ADMINISTRATIVE REVIEW

Petitioner the Wisconsin Department of Revenue (DOR) requests review of a Dece

1, 2003 decision by the Wisconsin Tax Appeals Commission (the commission) regardi

taxability of a 1995 purchase of a computer software system

Corporation (Menasha). The commission re

refund of or use t purchase

Explaining his ruling, Ebert said R/3 always requires substantial modification to adapt to a given customer's specifications. In this case, at SAP's recommendation, Menasha hired Deloitte & Touche LLP to help it make the changes. The implementation team used the R/3 Development Workbench tool kit to customize SAP's proprietary ABAP code to fit Menasha's needs.

In total, the installation required 3,000 modifications, for which Menasha paid some $2.5 million to SAP, $13 million to Deloitte and $775,000 to other consultants.

Even so, wrote Ebert, "the court sees no reason why software that provides the building blocks upon which modifications specific to the particular purchaser are made should not be deemed prewritten software."

Almost all ERP applications must be customized or modified after they're purchased, said John Matelski, deputy CIO for the city of Orlando, which runs PeopleSoft applications. He agreed with Ebert that making such tweaks isn't a true modification.

Moreover, if Menasha's arguments were to hold true, he said, then most implementation consulting costs would need to be considered nontaxable — and that would set a significant precedent that could require the state to refund all taxes to ERP customers that did such customizations.

As a rule, there is no rhyme or reason to how states assess software taxes, said L.J. Kutten, a lawyer at the Software Taxation Institute in Reno, Nev. Some states will allow a company a tax exemption if its software customization costs exceed half of the purchase price, Kutten said. Others tax out-of-the-box software costs but exempt later customization expenses. **50566**

Microsoft Plots New Office System Release

VP says vendor plans to continue cycle of two to three years between upgrades

BY CAROL SLIWA

A Microsoft Corp. executive confirmed last week that the company intends to continue shipping a new version of its Office System software every two to three years.

That would place the release date for the next version of the product suite, known as Office 12 within Microsoft, between next October and October 2006, since Office System 2003 shipped a year ago last month. But Chris Capossela, vice president of Microsoft's information worker product management group, said he isn't ready to discuss any specific dates.

"What I am ready to say is Office has had a fantastic 100% track record of shipping a new version every two to three years after the prior version," he said. "And I think the next version will be in that time frame too."

Capossela also gave few details about the new functionality that's expected to be included in Office 12. But he noted that corporate users have been asking for more help with managing documents and other content.

Microsoft's main document management product is SharePoint Portal Server, which is part of Office System. Capossela said the company wants to "raise the bar in what SharePoint does," but he also sees a "great partner opportunity" for other vendors to address gaps in functionality.

In response to another customer request, Microsoft will try to make it easier for mobile users to connect to SharePoint Portal sites, according to Capossela. He said end users currently can't access the sites unless they "VPN into" their corporate networks.

Packaging Questions

Speculation is mounting that Microsoft may add new server products to Office System. But Capossela said the company hasn't decided how the Office 12 functionality will be packaged. "So if someone says, 'Hey, is there going to be an Excel server? Is there going to be a Word server? Is there going to be a Visio server?' we literally don't know yet," he said.

But Microsoft is pushing ahead on its vision of an Office System that includes desktop applications, server software, and services designed to help teams of workers collaborate, he added.

Michael Silver, an analyst at Gartner Inc., said momentum among corporate users appears to be building for the Office 2003 suite of desktop applications. According to a survey of 184 clients at a recent Gartner conference, half of their combined total of PCs are likely to be running Office 2003 by the end of next year, he said.

Silver added that he expects the new version of Office System to ship in the same time frame as the desktop version of the next major Windows release, code-named Longhorn — in the second half of 2006 at the earliest. **50570**

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FRANK HAYES ▪ FRANKLY SPEAKING

Chaos Is Back

WE'RE LOSING GROUND. Only 28% of IT projects succeed these days, down from 34% a year or two ago. Outright failures — IT projects canceled before completion — are up to 18% from 15%. The remaining 51% of IT projects are "challenged" — seriously late, over budget and lacking expected features.

Those numbers are from the just-completed Chaos report from The Standish Group. Standish has been doing this study since 1994, and ever since, we've been steadily improving our ability to deliver projects. A decade ago, only 16% of IT projects were successes. By last year, it was twice that. Now we're backsliding.

How did we get headed in the wrong direction?

When I talked to Standish Chairman Jim Johnson, the numbers were still being crunched. But he pointed to a few significant details. For one: Projects are getting more expensive, and big projects are more likely to fail.

For another: As projects get bigger, we're no longer keeping our work iterative. We've gone back to more traditional development practices — practices with higher failure rates.

For a third: Lack of user involvement has jumped back to the top position among reasons for IT project failure. But lack of executive support is still running a very close second. Without committed executive sponsors and involved users, our projects fail.

Johnson told me the key to success is scope management. If you can keep projects tight and focused, avoid bloated feature wish lists and watch out for explosive requirements such as, "The new system must do what the old system did," you can do OK.

Maybe he's right. But I think we need to do more than just avoid scope creep.

One reason I like the Chaos study is that Standish counts up the results of lots of real projects, and it has been doing that for long enough that we can see real trends. So we know that our biggest success rate for IT projects came right in the middle of the recent downturn. After the bubble burst, budgets were tight, resources were strained and big projects were rare.

And — not coincidentally — our success rate jumped and our project cancellation rate dropped. When projects are small, we succeed.

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at **frank_hayes@computerworld.com.**

That suggests that we don't just need to keep projects from getting too big. We need to work actively to dismantle big projects.

Chop a big project down into smaller projects and three things happen. First, everything's simpler. We can use smaller, more focused teams. We can deal with a limited subset of requirements. Communication with users and team members is easier.

Second, we're less likely to abandon the small-project techniques that we know will work. Quick prototyping, continuous user feedback and iterative development deliver successful projects. But we're afraid to use them when we take on big projects. That's why we turn to traditional big-project approaches — and fail.

Third and maybe most important, small projects just aren't interesting to an organization's political players. Small projects aren't sexy. They don't grab the CEO's attention. So they don't attract fights over who will control the budget, or gamesmanship over the requirements, or early-and-often finger-pointing when anything goes wrong.

But those aren't the people you want as business sponsors anyhow.

By aggressively chopping down big projects, we can shed those problems and get back our success factors. Even as the demand returns for IT to solve big problems, we don't have to fail trying to solve them with big projects. We can break them down, solve them piecemeal and succeed.

We *can* stop losing ground and head in the right direction again.

That direction is small. **50543**

Unclear on the Concept

A flood at a cement company flushes water and cement through a server, and this pilot fish gets the job of retrieving data from the hard drive. "For those who don't know, wet cement is corrosive," reports fish. "The components were in a pile at the bottom of the case. The drive itself stayed dry, and we retrieved the data by purchasing a matching drive and controller and carefully soldering ribbon cables to the mechanism. And yes, there had been backups – the tapes were kept on the floor next to the server."

SHARK TANK

Fast Thinking

First task for this new-hire pilot fish is to review the company's 5-year-old disaster recovery plan. "It's a big priority for the CIO to have the plan updated ASAP because hurricane season is coming and he wants to be prepared," fish says. "I saw on the documents that we have a secondary site, but there was no address, so I asked where it is. They told me it's three blocks from here – the CIO wanted to be sure we can get there quickly!"

That Makes Two

Budget-conscious pilot fish redeploys an old but working server to the machine shop and asks a forklift driver to haul the server to its new location. Next day, fish goes over to hook up the server – and finds out it's at the bottom of the scrap hopper, under a thousand pounds of steel scrap. Why did you dump it there? furious fish asks forklift driver. Driver: "The tool room supervisor said, 'Get that piece of @#$%! out of here! We already have a computer here, and it doesn't work!' "

Go Ahead And Try

This university has a new voice-mail system, and pilot fish watches as a vendor rep trains staffers to use it. Rep: The first time you use your mailbox, you'll be prompted to choose and enter your password using the phone's keypad." Support staffer: "Can it be letters *and* numbers?" Rep: Well, sure. Staffer: "Case-sensitive?"

Impossible? Outsource It

It's United Way pledge time at this company, but the charity no longer produces pledge cards as continuous forms, so the IT department can't use a line printer to personalize them with employees' names and ID numbers. Can't you use a laser printer on these three-part forms? pledge coordinator asks pilot fish. "I explained the part about melting toner on the top copy, but not being able to do that with Parts 2 and 3," fish says. "He listened attentively and then wanted to know if anybody else in town could print three-part forms on a laser printer."

GIVE TILL IT HURTS. Donate your true tale of IT life to me at **sharky@computerworld.com.** You score a sharp Shark shirt if I use it. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharky.**

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